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A DISCUSSION OF THE FACTORS TO BE CONSIDERED IN DETERMINING WHETHER TO EXTRACT OR CONSERVE DISEASED TEETH.*

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In meeting the representatives of the professions of medicine and dentistry in different parts of the United States, I have been impressed with the fact that the dental profession has not given evidence of appreciation of the magnitude of its responsibilities. The rank and file of the profession still believe their responsibilities to begin and end with the repair and conservation of the teeth themselves. May I not, therefore, bring to your attention a few striking facts which tend to place these responsibilities in a light which forces a keener appreciation of them?

It is now conceded by the pathologists of the country that heart, joint, and kidney infections are largely of mouth origin. The isolation of the streptococcus viridans from the heart's blood and from ulcerating surfaces of the hearts of individuals, who have died from endocarditis, has been conclusively proven by numerous observers. The observation of our pathologists clearly indicate that heart, joint, and kidney infections are closely related, and may be regarded as one disease. This being the case, figures available from the bureau of vital statistics of the United States government tend to place in its proper relation, our responsibility as a profession. Certainly, the heart disease of the nation is largely traceable to mouth infection, and I here wish to submit figures from the Bureau of Vital Statistics for the years 1915 and 1916 on the relative importance of heart disease as compared to tuberculosis.

In the year 1915, the Bureau of Vital Statistics collected evidence to show that 105,202 people died of heart disease, while only 98,000 and some odd hundreds died of tuberculosis in all its forms. These deaths occurred among seventy per cent. of our population, because thirty per cent. of our population failed to keep statistics of sufficient value to warrant their tabulation. In the year 1916, the contrast between heart disease and tuberculosis is even more marked, for in that year, the deaths from heart disease in the registration area numbered 114,171 or 159.4 persons per 100,000 of the population. The death rate from this cause shows a marked increase as compared with 1900 when it was only 123.1 per 100,000. The total number of deaths from heart disease in the whole country, estimating our population at 115,000,000, would be 182,850. Tuberculosis, in its various forms for the year 1916, destroyed 101,396 lives in the registration area. Because of the progress in the prevention and treatment of tuberculosis, the decline in our tuberculosis death rate has been quite pronounced, having fallen from 200.7 per 100,000 in 1907 to 141.6 in 1916—a decrease of almost thirty per cent. However, tuberculosis causes more deaths than any other malady, except heart disease, and thirty-seven per cent. more than all external causes, accidents, homicides, and suicides combined. Quoting again from the Bureau of Vital Statistics, the only remaining death rate higher than one hundred per 100,000 in 1916 was that of Bright's disease and acute nephritis. The total number of deaths from these maladies in 1916 was 75,316[1].

It will be seen, therefore, that heart disease is a greater menace than tuberculosis and it is equally true that heart disease, to a very large extent, is preventable by proper mouth sanitation. The principal source of infection is the enormous growth of streptococcus viridans in the oral cavity and on tooth surfaces, whence it enters the circulation through pyorrhea pockets, chronic dental abscesses, and tonsil crypts. These vital statistics just quoted take no account of the individuals whose lives are ruined by arthritis, nephritis of streptococcal origin, neuritis, gastric ulcer, chorea, septic purpura, iritis, and several less common forms of streptococcicosus, which term has been recently advocated by Ulrich of Minneapolis to cover the various forms of inflammatory and pathologic

* Read before The Mid-Winter Clinic of Atlanta Society of Dental Surgeons. March 14, 1918, at Atlanta, Georgia.

[1]Census Bureau's Summary of Mortality Statistics for 1915-16.

lesions resulting from the invasion of the tissues by the streptococcus.

I desire to cite a case here of heart disease due to mouth infection. The above heart is that of Doctor X, who, when first seen, was suffering from a gastric ulcer. He was sound in every other particular, as far as our chief of the school of medicine, University of Minnesota, could determine, save for the presence of eight abscessed teeth. He was advised to have his abscessed teeth removed, and was sent to his home. Doctor X returned home, but did not have his abscessed teeth removed. In less than one month, he returned for further examination, at which time he was found to be running a temperature and exhibiting heart weakness, having developed a loud murmur heard at the apex and transmitted to the axilla.

The patient was sent to bed in the hospital, December eighteenth, and an ice pack was immediately placed over the heart. The routine treatment for endocarditis was given and the extraction of his abscessed teeth was advised. The first abscessed tooth removed was done with every precaution to prevent contamination of the abscess. The tissues around the area were bathed in iodine, the tooth root surface was scrubbed with alcohol and iodine. Saliva was excluded with a generous pack of sterile gauze. The tissues at the tooth neck were cauterized and the root was then extracted. The abscess sack was split and cultured from, and grew streptococcus viridans in numbers. This technic was repeated on two abscessed teeth with the same result. Then, two more abscessed teeth were removed but the patient was absolutely unbenefited by these extractions. Therefore, we ceased removing teeth. This patient ran a course in the hospital of some eighty-two days, developing a purpura of the skin of the arms and legs; also, a progressive involvement of the joints, and in the end dying from complete exhaustion. Post-mortem revealed a large ulcer in the ventricle, most of the walls of which are cut away to better photograph the ulcer. The ulcer is almost an inch in diameter, and one-eighth of an inch high. It has the appearance of a spoonful of strawberry jam flattened out on the auricular wall. The valves immediately below the ulcer have sloughed off, leaving nothing but stumps of scar tissue upon which have developed large vegetations. The pillars of the columna carneae of the heart have also ulcerated. Culture from the ulcer at the time of post-mortem developed prolific colonies of streptococcus viridans on blood agar. A root tip amputation undertaken on the post-mortem table under the strictest aseptic precautions also produced on culture, streptococcus viridans. The post-mortem further revealed small ulcers in the œsophagus and also revealed a healed gastric ulcer.

Now in regard to the kidney, it must be remembered in thinking of Bright's disease that the medical profession does not always clearly differentiate kidney disease, and not infrequently, people die of acute kidney infection called Bright's disease. The term, Bright's disease, should only be applied to general glomerulo nephritis, which affects the glomeruli of the whole kidney. This brings me to the point I want to make, that streptococcal infection, whether the mild streptococcus viridans or haemolytic streptococcus presents a complex of symptoms in many cases, which has clearly indicated to medicine that heart, joint, and kidney disease is in a great proportion of cases so closely associated that many physicians think of them as one. Whether this be a just conclusion or not, it tends to increase, our responsibility in dealing with streptococcal infections of the mouth. I here submit a table from the Minnesota Division of the Mouth Infection Research Corps of the National Dental Association for the year ending July 1, 1916.[2] In this table, Hartzell and Henrici compare the destructive character of the haemolytic and non-hemolytic streptococci and show conclusively that the non-hemolytic streptococcus of the mouth can and does invade the tissues of these animals in about the same proportions, as does the hemolytic streptococcus. One should remember in studying this table that the non-hemolytic streptococcus makes it appearance about the sixth hour after life and is always present after such time, while the hemolytic streptococcus is an occasional visitor. Therefore, the importance of the non-hemolytic streptococcus to the life of a nation is infinitely greater from the standpoint of its destructive power than the hemolytic streptococcus. This tends to place our responsibility as dentists in a clearer light.

The dental profession in years gone by has been chiefly engaged in conserving teeth without reference to or knowledge of the fact that in practicing this intensive conservation, they are oftentimes doing a serious damage to the patient, illustrated by the old aphorism, "Saving at the Spigot, but losing at the Bung." Medicine, on the other hand, has been

[2]Report of the Mouth-Infection Research Corps of the National Dental Association, for the year ending July 1, 1916. Reprinted from the Journal of the National Dental Association. Vol. 111, No. 4, November 1916, pp. 333-362.

quick to grasp every new thought or theory for controlling disease. This was clearly evidenced when the profession accepted the erroneous statements made by Bass and Johns and Barrett and Smith that amoeba was the true cause of pyorrheal infection and that emetine was a sure cure for pyorrhea. It is not surprising, therefore, that there has sprung into being a great group of medical men and a few dentists, who, to control the death rate from mouth infection, vigorously assail the conservationist and ruthlessly sacrifice many valuable teeth.

In view of the fact that the writer has contributed a large amount of the evidence upon which these destructive mouth infections have been brought to

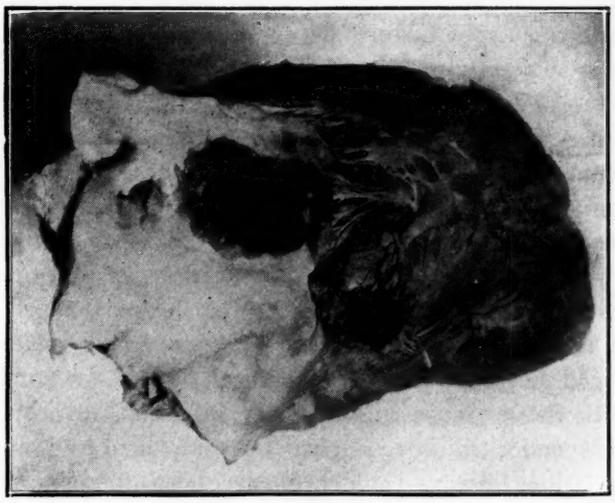

Fig. 1

the attention of the medical and dental world, it would seem no more than fair that he should also strive to place before the medical and dental profession a true perspective from which to observe the problem which necessarily confronts every man, practicing medicine and dentistry, as to what to do with diseased teeth and under what conditions we are justified in removing necessary dental masticating organs in order to prevent greater ills than those which arise from the lack of properly masticating our food. Therefore, let us consider for a moment the pathogenic flora of the mouth.

A close study of the mouth flora shows conclusively that while there are a great many bacteria found in the mouth at different times, there are really only four very important mouth organisms, and these I will mention in the order of their importance.

There is first the streptococcus salivarius, otherwise known as the streptococcus viridans. Second, there is the pneumococcus. Third, the various members of the staphylococcal group—albus, aureus, and citreus. Fourth, is the fusiform bacillus. These organisms named are practically always to be found in the mouth. Of the group of four mentioned, we have found by actual investigation, by collecting the bacteria of the mouth in great quantities and administering these mixed masses of bacteria to animals, that the streptococcus is the only one which is regularly re-obtained in the lesions thus created. This same streptococcus, which bacteriologists formerly thought to be non-pathogenic, when transplanted into animals, is the germ which produces many varied forms of lesion, and according to our own observations and those of Gies and Kligler, composes approximately one-half the bulk of mouth growth.

The staphylococcus, roughly speaking, produces a little less than one-fifth of the mouth growth. The remaining twenty to thirty per cent. of mouth growth is yeasts, thread forms, spirochaete, and accidental visitants; also, the fusiform bacilli, and pneumococci.

In 1915, Madame Brailovsky-Lounkevitch, of the Pasteur Institute, published an exhaustive article recounting her experience in the examination of mouth flora from birth until adult life.[3] In this paper, she maintained and proved that the first organism to make its appearance in the mouth of a babe is the streptococcus salivarius, which occurs about the sixth hour, and from that time on until the eruption of teeth, is practically the only organism of the mouth except occasional transient accidental visitants.

We have found upon examination and study of the flora of the mouths of individuals, that from the period of eruption of teeth until adult life, this same streptococcus makes practically fifty per cent. of the mouth growth. We now know that the presence of the streptococcus is almost universal. It occurs in houses, in dust, on the skin, in milk, and in many foods. There have been at least three streptococcal epidemics produced through the medium of milk, which have been reported in the medical journals. Probably, the most striking one was that in Boston, which was described by Theobald and Smith in the Journal of Medical Research,[4] and has been alluded to by many other writers.

The individuals who advocate complete destruction of dental organs in order to rid the body of

[3]Contribution a l'etude d la Flore Microbienne Habituelle de la Couche Normale (Annales de l'Institut Pasteur, August, 1915, xxix, p. 379.)

[4]Medical Research, 1915, Vol. 31, page 455.

streptococcal growth, therefore evidence profound ignorance. Wholesale extraction of teeth will not rid the body of streptococcal growth. One might as well advise removal of the transverse colon to rid the body of the colon bacillus. A much more sane method of cutting down the inroads of mouth infection is that of vigorous systematic mouth sanitation together with the adoption of a diet planned to prevent intestinal putrefaction. This is just as capable of reducing the enormous mouth growth to a safe minimum as are the present methods for controlling bacterial growth in milk, now demanded by our cities. The difference by weight and count in the number of bacteria per milligramme of tooth scrapings in dirty mouths to that of reasonably clean mouths has been shown by Kligler and Gies[5] to range from eight hundred million in the dirty mouth to five to eight million in the clean mouth. Translated into terms of oral prophylaxis, we may find that ten minutes a day spent in proper mouth sanitation will produce this safe minimum. The writer's first thought then in regard to the extraction question is that correct mouth sanitation and proper diet will make ruthless extraction of teeth unnecessary. A proper education of the dental profession in a broad way will soon enable them to place in a true perspective the factors which actually justify conservation, or, on the other hand, extraction.

Please recall that the mouth streptococcus makes its appearance at birth, and that it forms (roughly speaking) half the mouth growth; also, that our bodies are of greater or less degree, sensitized to its presence and that its most destructive attribute is the production of secondary anaemia. Its toxins lessen vitality and lay a foundation of physical weakness in an individual for its ravages in the tissues when it becomes too numerous for the leucocytes in the blood stream to destroy the individual members of the family, which gain access to the stream. Therefore, the first broad view that should come into the mind of an individual as to the conservation or destruction of infected teeth should rest on the wealth or poverty of the blood stream. To illustrate, an individual with a full complement of red cells, five million to the cubic centimeter of blood with a haemoglobin of not less than eighty-five, and a leucocyte count of seven to eight thousand to the cubic centimeter together with a normal digestion, a normal urine, and a reasonable amount of energy, is safe in conserving any of his dental organs which might present for treatment. This conservation should be first, the reduction of mouth growth by prophylactic means to as nearly as possible the minimum, and, where teeth must be devitalized, such devitalization should be done under exactly the same kind of surgical asepsis, as is demanded of surgery of the brain or abdominal cavity.

Now, as to the other side of this question, as to when we are justified in breaking down dental mechanisms by extraction. This must rest again upon an examination of the patient's vital resistance, expressed by the blood stream, together with any evidence which tends to prove that the individual has been oversensitized or brought into a condition of anyphylaxis to streptococcal infection by a long exposure to such infection. A clinical picture, which would demand extraction, might be as follows: Early history of tooth and tonsil infection, swollen glands, draining the mouth and throat area, poverty of red cells, reduced haemoglobin, and a markedly increased or decreased leucocyte count. It is a well recognized fact that a leucocyte count above ten thousand is strongly indicative of deep seated infection, while a low leucocyte count, say five thousand or less, points to the fact that the leucocytes are waging a losing battle, particularly if such reduction in number is accompanied by reduced haemoglobin. If a clinical picture presents with the evidence of secondary infection, myocarditis, endocarditis, or nephritis accompanied by joint or kidney disease (evidenced by casts, albumen, or sugar) extraction is justifiable. Any of the factors above recited, accompanied by the poverty of red cells and poverty of haemoglobin, even if the leucocyte count be normal, fully justify the extraction of diseased teeth. One might go on and enumerate combinations of clinical pictures which would bring in many other physical conditions dependent upon streptococciosis. For instance, in chronic streptococcal infection, one infrequently finds cholecystitis, and on palpation, an enlarged spleen. While the dentist, who has not had the advantage of a medical training, may not be capable of gathering all the evidence tending to establish a condition demanding the positive eradication of all primary sources of infection which can be reached, he can always or almost always bring into his counsel, an internist or the family physician to aid him in gathering the necessary data on which to base a sane conclusion. The time is fast approaching, if not already here, when the men in the practice of medicine and dentistry are willing to listen to the arguments, pro and con, which should determine a wise course of treatment. Individuals, who pre-

[5]Journal of Allied Societies, September, 1915, Volume 10, number three, pages 282-331.

sent a clinical picture which tends to establish the fact that the body has waged an unsuccessful war against streptococcal infection for a series of years, perhaps from youth up, and who are now suffering from any one of the evident phases of streptococcal infection, had better exist without teeth than go on with a primary intake from even one abscessed tooth. It is my observation that many times a sensitization of years standing with a single, small continuous source of infection is sufficient to maintain such a marked secondary condition as to utterly unfit the individual for the duties of life. Let me mention a case illustrating this point.

A man forty-eight years of age, six feet, one inch tall, weight two hundred pounds, with a normal blood and urine, having led a very active and vigorous life and possessing a very strong denture, was, during the latter part of 1916, stricken with septic purpura of the upper and lower extremities. This purpura came on following any muscular effort and was exaggerated by walking or carrying even the moderate weight of a light traveling bag. The hemorrhages would disappear on rest in bed, only to re-appear when muscular effort was indulged in. The patient sought relief in different parts of the country and was advised that his tonsils were possibly the source of his infection. Consequently, his tonsils were removed in 1916 with some temporary benefit resulting thereafter, but after a period of rest, and the patient later again attempting to work, the hemorrhages recurred in greater numbers. When this man was first seen by the writer, there had recently occurred a large crop of new hemorrhages on his arms and legs. Patient was advised to go to bed and rest for a few days. Accompanying the purpura, was a broken compensation, which heart lesion doubtless originated from the same source of infection which caused the hemorrhages under the skin. The patient was subjected to a very searching physical examination by the chief of medicine, University of Minnesota. No source of infection could be demonstrated. Finally, this patient was referred to the writer for an examination of his mouth, and it was found that the individual had two devitalized teeth with very slight granulomatae about their root ends. The gums adjoining the teeth were rather a purple or lavender color and very much thickened. No pus could be squeezed from the gums, although an instrument could be thrust into the gum crevice of the molar region both above and below from one-eighth to one-fourth of an inch. There were exhibited a few deposits on these roots. The removal of the deposits caused profuse hemorrhages from the gum, but no pus was seen to issue from these gums at any time. Slow treatment of the teeth was practiced, operating upon one tooth at a time and allowing a period of three to five days to elapse before another was touched. Upon complete cleansing of all the root surfaces, the hemorrhages had quite disappeared and have never recurred in any great amount since. The patient occasionally, under heavy stress, will have a very few small punctate hemorrhages on the lower extremities above the ankles. Since the mouth treatment was given him, patient has been engaged in his usual vocation for the past four months, although he has been incapacitated for the previous two years. The follow-up treatment in this case has been vigorous massage, which emptied the congested and infected blood from the tissues adjacent to the teeth into the general blood stream, so that the bacteria hitherto lodged in these tissues were readily phagocyted. This after treatment was most important. The patient has also practiced intensive mouth and tooth sanitation, rubbing the teeth until they shine and removing from them most of the daily growth of bacteria. In this connection, it must be remembered that the streptococcal growth, when absolutely unrestrained by physical conditions, doubles every thirty minutes. Therefore, the great importance of vigorous scrubbing of mouth and tooth surfaces with the plentiful use of water to flush out the organisms, and the use of disclosing stain to guide the patient in his effort to get his teeth clean, and to restrain the growth and lessen the number of bacteria from day to day, is here emphasized.

I have mentioned this particular case, because septic purpura is comparatively rare and had it not been for the method adopted in eradicating this infection, the patient would never have completely recovered, as with a broken compensation dependent on myocarditis and a previous old endocarditis, had complete extraction been performed at one sitting, the result might have been the wrecking of the patient's whole chance of life. A normal blood and urine justified conservation.

Let me relate another case history, in which extraction was wrongly advised—that of a young woman thirty-two years old with an arthritis of the ankles and insteps of sufficient severity to make walking extremely painful, with absolutely no source of infection hitherto discovered to explain the arthritis. Examination of the mouth showed that every tooth in the upper and lower arch was

vital. No large cavities existed and no lesion of the mouth, save a very vigorous gingivitis, involving less than one-eighth of an inch of the gum margin. Upon the application of disclosing stain, masses of bacterial placques were revealed, covering all save the grinding surfaces of the teeth. This patient was so extremely sensitive that even in doing an ordinary prophylaxis, it was necessary to administer an anaesthetic. Five different treatments, five days apart, using fine stones to grind out the pits dissolved into the enamel surface by the heavy masses of acid-forming cocci, and the reduction of mouth growth resulted in complete reduction of the swelling of the ankle and instep, and the continued practice of mouth prophylaxis of fifteen minutes a day, massaging the gums with the ends of half inch cotton rolls and scrubbing the teeth with brush and paste, applying disclosing stain twice a week, resulted in a complete cure of the gingivitis and the arthritis of the feet, which cure is still perfect. It must be remembered that no dead pulps existed and no teeth were extracted and the blood picture was good.

Take a third case, a young woman thirty-five years of age; two children, one eight years old, and the second child lost from purpural uraemia, accompanied with a blood pressure of 250. No cause known for the uraemia. Patient was advised that the condition arose as a result of mouth infection and was referred to the writer for the complete removal of all her teeth. A careful examination of the teeth in the arches showed pyorrhea pockets around the molars, none of which were more than one-eighth of an inch in depth, and two pulpless teeth, left and right laterals in the upper arch. The roots of these teeth were rather imperfectly filled and presented small granulomatae. The treatment given this patient was slow inoculation by pyorrhea treatment given seven or eight days apart, and was completed by the amputation of the two diseased root tips in question. The patient at the beginning of treatment presented casts and albumen in her urine, and possessed a blood pressure of 250. At the close of her mouth treatment, the blood pressure had dropped to 190 and only an occasional trace of albumen can now be found in her urine.

These three cases serve to illustrate what may be done by intelligent conservation accompanied by proper daily mouth sanitation. In these three cases, the haemoglobin and red cell count were practically normal, and the leucocyte count showed a rise of two to three thousand. Had these cases presented very marked anaemias or past histories of long drawn out chronic infections it probably would have been impossible to have benefited them, but the leucocyte count and the haemoglobin indicated to the writer a strong possibility for cure. Though in two instances, complete removal of the teeth was advocated, no teeth were removed, while in the case of septic purpura, the third molars were removed because the pockets around the third molars were more than one-fourth of an inch in depth, and the balance of the denture was in such perfect condition that the patient could well afford the loss of his third molars.

Allow me to present a case illustrating the line to be followed where secondary anaemia has existed for some time.

Mrs. D., seventy years of age, presented a set of sound teeth, which formerly had been affected with pyorrhea. Pockets around teeth but not discharging pus. When she first appeared April 17, her red cell count was 3,000,000 and her haemoglobin was 70. Patient desired the removal of all her teeth as she had spent the winter in the South and lived under the most encouraging conditions to improve her health and increase the haemoglobin and red cell count. No improvement of anaemia occurred. Slow extraction of her devitalized teeth was undertaken, as well as those affected with pyorrhea—one tooth every week or ten days. Since this has been accomplished, her red cell count has increased to 4,100,000. In this case, pyorrhea treatment had been administered three years before, and as far as the mouth tissues were concerned, the treatment was apparently successful. Nevertheless, there must have been a sufficient amount of growth around the dead teeth and in the seemingly healed pyorrhea pockets to reduce the patient's haemoglobin and blood count. Though no masticating surfaces have been placed in this mouth following the extractions, the patient being limited to the incisors and cuspids above and below, the red cell count has increased.

In this case without a blood picture, conservation would surely have demanded retention of the teeth. The blood picture, however, fully justified extraction, and though it was necessary to break down a good masticating mechanism, the patient was greatly benefited as far as her general health was concerned. In this connection, too much stress can not be put upon the pioneer work done on the subject of haemanalysis and urinalysis by Colonel Wm. H. G. Logan. The result of his experimental work is recorded in the Dental Review, September, 1916.

Another case, a man about sixty years of age presented teeth which were apparently solid in his arches, but with a series of pyorrhea pockets involving most of the teeth. This case seemed to be clearly within the scope of successful treatment. Therefore, one pyorrhea treatment was given, which markedly reduced the energy of the patient. The patient returned in one week for an additional pyorrhea treatment. Immediate examination of the urine was suggested. The urine was carefully examined. The specific gravity was high and it contained between four and five per cent. of sugar. Conservative treatment of these teeth was immediately discontinued, and extractions were undertaken at intervals of seven or eight days apart. In this instance, the patient was saved the burden of pyorrhea treatment. Under ordinary conditions with a healthy kidney and normal blood picture, these teeth would have been treated.

Therefore, we need to emphasize the fact that modern means of laboratory diagnosis and the taking of careful case histories with the modern X-ray pictures, should be the foundation stones upon which conservative or destructive dentistry should be determined.

If the dental and medical professions will get together on all cases in which extraction is advocated, and will gather and weigh the evidence each case presents, it seems altogether likely to me that we can arrive at such a sane and reasonable judgment of the conditions that justice will be done to all.

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MEDICAL LEADERS.

Physicians frequently express themselves as resentful of the lack of consideration they receive at the hands of those endeavoring to secure hygienic reforms. If the medical profession, through its organizations, were in the forefront of health movements and were less reticent in expressing their views and convictions, it would not be necessary for them to be consulted, but on the contrary they would be in the position of inviting the cooperation of those who, under present conditions, are accustomed to going ahead without consideration of the possible support to be secured from medical societies. As long as this latter state of affairs continues medical men cannot hope to win and hold the place in their respective communities to which their knowledge and training give them a right to aspire.—*American Medicine.*

CERVICAL SYMPATHECTOMY AS A MEANS OF A PERMANENT CURE OF FACIAL (TRIGEMINAL) NEURALGIA.

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Whatever may be the cause of facial (trigeminal) neuralgia, its cure remains an uncertainty as medical treatment fails in almost every instance; few methods if any, proving absolutely sure.

The radical operation for the removal of the gasserian ganglion is too difficult of execution for the average surgeon, and not a few cases are on record where the pain persisted in spite of its complete removal. (J. B. Murphy, Doyen, Krause and others).

The same criterion may be applied to the method advocated by Frazier of the intracranial severing of the sensory root.

The author practiced in Mexico for a number of years, in which country, trigeminal neuralgia is common. The various peripheral surgical methods were tried, including those of Tansini and Laplace, with varying results; in most instances the pain returned after short, or sometimes longer, intervals of ease. Deep injections of alcohol gave, perhaps, the best results of all, though unfortunately the pain returned in from nine to twelve months, when the injection had to be repeated. In a few cases a keratitis was observed, and even actual loss of an eye.

As accident would have it, we had a patient suffering from glaucoma (left eye) and left-sided trigeminal neuralgia (mostly of the first division). We resorted to cervical sympathectomy and in less than three months, the severe neuralgia had disappeared and did not return in the five years or more, the patient being under observation.

It has been my habit when performing this operation for neuralgia, to inject alcohol at all points of exit of the trigeminal nerve from the skull, avoiding injecting it inside the foramen ovale; in this manner there is a decided immediate relief from pain, which is not the rule when performing sympathectomy alone.

It takes unusually weeks, (three months or more), before a definite relief is noticeable, when simply removing the cervical ganglion and branches given off from it.

A most interesting case is that of a Mexican peon who suffered from tic-douloreux of the left hand, following a crushing injury to it some months previous. He attempted to relieve the pain

by plunging the hand into boiling hot oil which promptly produced a claw-hand, but did not relieve the pain. Later on he went to Mexico City and was operated on; linear scars demonstrating that operations had been performed on the median and ulnar nerves. This did not relieve the pain either. Later, an operaton was performed by a Mexican surgeon, which consisted of the exposure and injection with osmic acid of the individual branches of the axillary plexus. This also, produced no relief. At this time he began to suffer from trifacial neuralgia, which, in a short time could be classified as a genuine Neuralgia Quinti Major.

A cervical sympathectomy was now performed with the view of relieving the facial neuralgia, in which we succeeded in the space of between two and three months. In this case, superficial and deep injections of alcohol were made at the various trigeminal foramina. Jointly with the facial neuralgia, the pain in the hand disappeared.

Patient, a banker, 60 years old, had facial neuralgia for several years, developing into a true Neuralgia Quinti Major (dextr.). He was unable to swallow cold water or brush his teeth; most of his teeth had been extracted with a view of relieving the neuralgia and several operations (peripheral) had been performed, but in vain: Osmic acid had been injected without result, besides causing a severe slough at points of injecting it. Under twilight sleep and local anesthesia, cervical sympathectomy and superficial injections of alcohol were performed. Inside three months the patient could swallow cold water and brush his teeth.

Leriche (in Archiv. de Mal. de Coeur, Paris, Feb., 1907, X #2) writes of peripheral and peri-arterial sympathectomy, for the cure of certain neuralgia of the viscera (denudation of coeliac artery.) Some authors mention a case of causalgia of the median nerve by resecting a portion of the sheath of the brachial artery.

Several cases of permanent cure of sciatica have been reported by Jacobsen of Copenhagen, by resection of a portion of the sheath of the femoral artery.

Veyrassat in (Rev. Med. da la Suisse Romande Geneve. Jan. and Feb., XXXVII) mentions a case of malperforans, cured by resection of the sheath of the femoral artery, a similar operation also done for Raynauds disease. The author calls his method peri-arterial sympathectomy.

The uniformly good results we have obtained in a series of more than fifty cervical sympathectomies, with or without the deep and superficial injections of alcohol, without a single mortality, leads me to publish this article to urge the method as one worthy of a trial.

The method followed is that which is described in most text books of surgery.

A very good illustration showing the incision into the carotid sheath and exposure of sympathetic ganglion, can be seen in *Collected Papers of the Mayo Clinic* of 1915, pages 338-339.

It is possible that the remarkable relief that invariably (though at times tardily) follows cervical sympathectomy is due to the fact that the parts where the pain is located, are suffering from anemia, and the cutting of the sympathetic produces a vaso-paralysis with subsequent vaso-dilatation so that the anemic parts become permanently flooded with blood.

On many occasions we have performed cervical sympathectomy under the combined action of local anesthesia of novocaine- quinine- potassium sulphate- adrenalin, in physiological salt solution, and a hypodermatic injection of morphine-scopolamine-atropine.

A factor of value in the speedy performance of this operation is the placing of Crile's screw-clamp on the external or common carotid artery. A bloodless field is thus at once secured.

Anyone who has treated patients suffering from neuralgia of the first division of the trigeminal nerve, knows how difficult of treatment such cases are. These cases cannot be reached by the deep injection of alcohol. Resection of the supra-orbital and trochlear nerves always result in return of pain, and avulsion of the gasserian ganglion is rather too serious an operation to resort to. It is exactly in such cases that cervical sympathectomy shows its great value, though as has already been mentioned, the relief is somewhat slow in developing.

LUMBAR GANGLIONIC SENSITIVENESS

In cases in which hypersensitiveness of the left lumbar ganglion is discovered on pressure we discount the importance of the sign relating to the appendix and look for some irritative lesion in the pelvis. The pelvic sympathetics gather and transmit impulses over such a wide distribution that both sets of lumbar ganglia may become hyperalgic but when the appendix alone is involved the right lumbar ganglionic sign standing alone becomes the most important one in differential diagnosis.—R. T. MORRIS, in *The Medical Record.*

VERTIGO: ITS SIGNIFICANCE AND DIAGNOSIS IN RELATION TO GENERAL MEDICINE AND SURGERY.

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Fifty-eight years ago Meniere published his classical paper outlining a more or less definite group of symptoms produced by hemorrhage into the labyrinth, associated with vertigo, and followed by incurable deafness. It is unfortunate that this syndrome, with which the name of Meniere has been intimately associated, has conveyed to the general medical profession the idea of an existing ear pathology for which little can be done in a therapeutic way.

While latterly otologists have drawn a clear distinction between true Meniere's disease, of the type to which he referred in his paper, developing suddenly in individuals without previous ear trouble and Meniere's syndrome, occurring in those suffering from some affection of the middle ear, this distinction is not universally understood and appreciated by the medical profession; therefore, excepting among otologists, there is a tendency to regard any patient presenting the group of symptoms described by Meniere as having an incurable ear disease for which only palliative treatment and a hope against recurring attacks can be given.

Meniere described the case of a girl who became chilled at her menstrual period; this was followed by bilateral deafness, accompanied by severe tinnitus, vertigo and irremediable vomiting, from which she died. Necropsy revealed nothing in the brain or spinal cord to account for death; but when the temporal bones were examined the semicircular canals on each side were found filled with blood and fibrous exudate. From this and several similar cases he constructed the clinical picture of a distinct acute disease characterized by bilateral deafness, vomiting and tinnitus, which he attributed to labyrinthine hemorrhage.

Important advances have been made since the time of Meniere,—when he showed that vertigo might be associated with diseases of the internal ear. It soon became obvious that cases of Meniere's disease were not all due to hemorrhage into the labyrinth, and the term Meniere's syndome appeared more applicable. Under this heading are grouped cases characterized by attacks of vertigo associated with tinnitus and deafness; but such cases may differ widely as regards their etiology and pathology.

Much of the chaos enshrouding the subjective symptoms of vertigo has been eliminated by the investigations of Robert Barany, formerly of Vienna, but now of the University of Upsala, Sweden. For his researches on the ear he was awarded the Nobel prize in medicine in 1915. Great credit is also due Jones, Fisher, Mackenzie and Lewis—all Americans—for what they have accomplished in rendering the work of Barany more practical for every-day use.

What do we mean when we speak of vertigo? Panse in his classical work on "Schwindel or Vertigo" defines it as a delusion of our sense of position in space. Again, American ingenuity has come to our aid in suggesting a more comprehensive definition, viz., a sensation of motion which is contrary to fact. This sensation may be either positive or negative.

Everyone understands that the ear is the sense organ of hearing, but it is not so generally known that the internal ear also contains the sense of equilibrium. The recent World War has assisted in the dissemination of information concerning the latter fact, because of the imporance it has attained in the science of aviation.

Our equilibrium in space is maintained by means of (a) the eyesight, (b) the skin, muscle, joint and viscera sense, known as the kinesthetic sense, and (c) the vestibular mechanism or apparatus. Our visual and kinesthetic senses serve other functions, but the sole function of the vestibular apparatus is the maintenance of normal balance. The vestibular apparatus embraces the kinetic-static labyrinth of the internal ear, which consists respectively of the semicircular canals, the saccule, the utricle and its various connections with and throughout the central nervous system.

The normal individual knows when he is standing erect, inclined backward or forward or to either side, or whether he is lying or sitting; he is also cognizant of whether he is moving in a straight line, forward, backward, or to either side, or vertically upward or downward; he is also aware of movements in a circle in any of the three planes or the resultant of these planes. All these physical phenomena are made apparent by the kinetic-static labyrinth.

Just as normal equilibrium is maintained from three sources—ocular, kinesthetic, and vestibular—so may we have three types of vertigo. In ocular vertigo there are accompanying symp-

toms which direct attention to the eyes as the source of the disturbance, the vertigo disappearing when the eyes are closed. Kinesthetic vertigo is usually associated with slowly progressive disease, such as tabes, multiple sclerosis, etc., and on that account time is permitted for compensation; when present it is aggravated by closure of the eyes, which calls attention to its source in the kinesthetic apparatus. Vestibular vertigo is rotational in character and is far more unpleasant than either of the foregoing types. Hitherto this form of vertigo has been most frequently associated with diseases of various organs, and for that reason has been erroneously called "renal vertigo," "stomach vertigo," "liver vertigo," etc.

Considering the variable character of vertigo, does it not seem strange that examination of the ears can assist so materially in analysis of its manifestations and in determination of the cause? Since the vestibular apparatus controls equilibrium, vertigo appears when there is interference with perfect equilibration. It must therefore be remembered that vertigo is a clinical entity, and that it occurs only when there is disturbance of the ear and its associated intracranial pathways. In other words, vestibular vertigo can only occur when there is disturbance of the vestibular apparatus, and therefore vertigo is essentially an ear problem.

Normally both ears are constantly transmitting stimuli of equal tone to the body muscles to maintain equilibrium, and when spontaneous vertigo is experienced by the individual it means that somewhere along the paths of the vestibular apparatus something has occurred to produce inequality in the flow of tonic impulses. The significance of this lies in the fact that the intangible something may be due to slight disturbance in function or irritation evanescent in character which may leave the vestibular apparatus intact; on the other hand, however, it may be due to a lesion in the end-organ, the labyrinth itself, or the labyrinth may be intact and the lesion located somewhere along the associated intracranial pathways.

When the ears are powerfully stimulated two main reactions occur, viz., (a) nystagmus, an objective reaction, and (b) vertigo, a subjective one. The objective responses, past-pointing and falling, are resultant of the induced vertigo. These reactions and responses are primarily induced by endolymph movements within the labyrinth. To simplify the remembering of what the normal responses should be, Jones and Fisher have given four distinct laws:

(1) The eyes are drawn in the direction of the endolymph movement:

(2) Vertigo is always opposite to the endolymph movement:

(3) Falling always occurs in the direction of the endolymph movement:

(4) Past-pointing always occurs in the direction of turning.

In postulating the central course of the fibers of the vestibular portion of the eighth nerve, Jones and Fisher claim the fibres shown histologically by Cajal—which proceed from the vestibular labyrinth and enter Deiters' nucleus, thence proceeding to the cerebellum by way of the inferior peduncle—are the fibers from the horizontal canal, and that the fibers from the vertical canals shunt Deiters' nucleus, and passing to the inside, ascend into the pons. Here, in some undetermined center, they undergo branching described as a "Y," the vertigo fibers entering the cerebellum through the middle cerebellar peduncle, whereas the nystagmus fibers enter the posterior longitudinal bundle, being thence carried to the nuclei of the third and fourth cranial nerves.

Jones and Fisher also describe a "Y" in the branches of the fibers from the horizontal canal, one carrying the vertigo fibers through the inferior cerebellar peduncel to the cerebellum, and the other carrying the nystagmus fibers which enter the posterior longitudinal bundle, thence proceeding to the nuclei of the third and sixth cranial nerves.

The vertigo fibers from the vertical and horizontal canals meet in the nuclei of the cerebellum, *i. e.*, fastigii, emboliformis, and globosus, and proceed together decussating in the crura cerebri to the second temporal convolution of the opposite side, postulated by Mills as the "vertigo center."

Using the foregoing conception of the central differentiation of the fibers of the horizontal and vertical canals, the following "phenomena complexes" have been developed; and these having been noted clinically have been checked in a surprisingly accurate way with post-mortem pathological findings:

(1) If after ear stimulation no responses are obtained either from hearing or vestibular tests, we are dealing with a dead labyrinth, or eighth nerve, or both:

(2) If stimulation of the horizontal semicircular canals produces no nystagmus, but normal

vertigo and past-pointing, the lesion is located between Deiters' nucleus and the posterior longitudinal bundle:

(3) If after stimulation of the horizontal canals there occurs normal nystagmus, but no vertigo and no past-pointing, the lesion is suggested as being in the inferior cerebellar peduncle of the same side or at a point beyond in the vestibulo-cerebello-cerebral tract:

(4) If stimulation of the vertical semicircular canals produces no nystagmus, but normal vertigo, past-pointing and falling, the lesion is located in the pons between the unnamed center, where the nystagmus and vertigo fibers divide, and the posterior longitudinal bundle: Should the lesion exist further backward toward the medulla it would involve both the nystagmus and vertigo fibers of the vertical canals:

(5) If stimulation of the vertical canals produces normal nystagmus, but no vertigo, past-pointing or falling, then the lesion is suggested in the middle cerebellar peduncle or beyond at some point in the vestibulo-cerebello-cerebral tract:

(6) If stimulation of the vertical semicircular canals produces normal nystagmus, but no vertigo, past-pointing or falling, a lesion of the cerebellar nuclei of that side is indicated, or it may be in the upper portion of the pons where these fibers again come together at their decussation in the superior cerebellar peduncle. At the latter location conjugate deviation of the eyes instead of nystagmus may occur, showing involvement of the cerebro-ocular tract which transmits the stimuli for the production of the fast component of the nystagmus.

From the foregoing an idea may be obtained as to the manner in which we interpret the findings after the ears are artificially stimulated by the turning, caloric and galvanic tests. When the patient complains of spontaneous vertigo, it must first be determined whether we are dealing with an ocular, kinesthetic, or vestibular vertigo. A complete and thorough examination of the vestibular apparatus is then necessary to properly classify the case and arrive at a correct diagnosis. To save time one should obtain and accurately record all valuable data; such a record will be of aid for analysis and future reference. Jones and Fisher have given us an excellent chart which I consider one of the greatest advances in the standardization of the Barany tests.

In conducting an examination of the vestibular apparatus we first determine the condition of the cochlea, or auditory portion of the internal ear, and examine for spontaneous phenomena such as nystagmus, vertigo, past-pointing, and falling. The hearing tests are those elaborated by Dr. B. Alexander Randall, of the University of Pennsylvania, and show all the data necessary. These tests may be so quickly and accurately applied that there can be no excuse for failure to make hearing tests rountinely.

After the spontaneous phenomena (if present or absent) have been recorded; the ears are stimulated by the turning, caloric, and galvanic tests, after which the results are interpreted. When a lesion has been located in the vestibular apparatus, we must next determine if possible the etiological factor producing the vertigo. Space and time forbid entering into great detail, but generally speaking vertigo may be caused by:

(1) Involvement of the ear mechanism by a lesion in the ear or eighth nerve, such as hemorrhage, effusion, various kinds of labyrinthitis, inflammation of the middle ear producing congestion and irritation of the labyrinth, leukemic infiltration, trauma, neuritis, low-grade specific meningitis, etc.:

(2) Lesions affecting the intracranial pathways, such as hemorrhage, trauma, tumor, abscess, thrombosis, infarction, tubercle and gumma formation, multiple sclerosis, syringomyelia, meningitis of various types, polioencephalitis, etc.:

(3) Involvement of the ear mechanism by toxemias from any organ or part of the body, chemical poisoning from alcohol, lead, salicylates, quinine, etc.; infectious fevers, such as parotitis, scarlet fever, typhoid fever, nephritis, gout, lues and focal infections:

(4) Involvement of the ear mechanism by ocular disturbances.

(5) Involvement of the ear mechanism by circulatory disturbances, cardio-renal and cardiovascular conditions.

Because of the large number and variety of etiological factors which may be thus concerned in the production of vertigo, the newer ear tests mentioned, which have been styled "Neurotology" offer much—especially to the internist, the otologist, the neurologist, the syphilographer, and the surgeon—as aids in diagnosis. There are few cases of vertigo which cannot be accurately diagnosed after a complete and thorough examination of the vestibular apparatus.

In closing I wish to impress upon you that vertigo involves essentially a study of the vestibular apparatus; and that it signifies a disturbance of that apparatus.

When you encounter a case of vertigo your first thought should be of the ear and its intracranial connections.

Viewed and studied from this standpoint the majority of cases of vertigo can be accurately diagnosed by careful application of the vestibular tests.

SOME INTERESTING CASES IN CAMP HOSPTAL, NO. 59, A. E. F.

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It is but natural that all journalistic tendencies at present, are toward the topic military. This is true whether the subjects be lay or medical, but in the case of the latter, this tendency is readily understood, and forgiven when one realizes that of every four M.D.'s in the United States, one doffed his blue serge, sold his Ford and donned a blouse and breeches of khaki, and, if he went overseas, a Sam Browne belt. And now that some of the more fortunate are returning to the land of bath where a pomme de terre is readily recognized as a potato, voices are heard throughout the land, with ever ready listeners, eager to hear those things formerly heard only by Mr. Creel. Possibly I could hold your interest were I to relate my sensations the first time I was wounded, but I have never been wounded; or how I captured my first Hun, but unfortunately, or rather fortunately for me, the Huns I saw, had been captured before I saw them. I could truthfully tell how I took and held Scabies, but a medical man's natural modesty forbids further mention of a matter so ticklish, epidermatically speaking.

So, I do not believe that I will cause any reader uneasiness, should I devote myself to a brief description of several interesting surgical cases that came under my observation at Camp Hospital No. 59, where I was the Chief of Surgical Services. Unfortunately, for those who may be scientifically interested, I have no available data, and I am relying upon my memory, but, of course data exists for all of the cases.

Camp Hospital No. 59 was a hospital of some six hundred beds and was used for the reception of wounded from evacuation and field hospitals. The brave fellows who came to us for care had been wounded from three to ten days before, at the front. Occasionally we received emergency cases from organizations nearby, an acute intestinal obstruction, perhaps, or a self inflicted gunshot wound. But, of course, the cases from the front were the most interesting and the most gratifying in results obtained, due most often, to excellent surgery in the evacuation hospitals.

I recall but one death in my service. He had a compound fracture of the femur, multiple wounds and death was due to broncho-pneumonia, following influenza. I had a number of cases that flirted with death, outrageously, but they managed to keep their names from our mortality lists, and by this time, no doubt, they are telling their awed loved ones how "rotten" was the hospital fare. But nothing was left undone by our officers, nurses and the Red Cross "workers" to render homage to those who had bled so bravely and never murmured.

There is one case that stands out most vividly. He came in with the first batch of wounded from the drive in the St. Mihiel salient. He came in on a Friday night and was "tagged" scalp wound, possible fracture of skull. I recall seeing his wound Friday night, situated on a level with, and to the left of the external occipital protuberance.

It was about two and a half inches long and had been sutured. Shrapnel was the cause. The following morning the ward surgeon requested me to see the patient as he had complained of difficulty of vision. I went to the patient's bed, where I found him in a sitting position. He had been up but had returned to bed, he said, on finding that his vision was somewhat indistinct. His answers to my questions, I noticed, were slow and deliberate and quite different, I recalled, from what they had been on the previous night. While talking to him, I noticed a twitching of the little finger of his right hand, barely perceptible at first, but convincing, when I saw a repetition of the phenomenon. I had his head bandage removed, and examined his skull most carefully and but for a slight oozing from the scalp wound, found nothing. Returning to question the patient, he said, "I—can—hardly—see—doctor," and then he suffered a slight tonic convulsion of his right arm and forearm. His left pupil was somewhat contracted, just sufficient to be noticeably smaller than the right. I ordered his head shaved, and went to the operating room

to prepare instruments for trephining. Within five minutes I was again summoned to the ward and found the patient having general epileptiform convulsions necessitating the administration of chloroform. While preparations were going on for the operation, he had several of these convulsions, controlled only by chloroform, the continuous administration of which, was rendered impossible by his marked cyanosis. After bringing him to the operating room, it was the work of but a few minutes, to remove a parietal flap on the left side and to expose a dura that had lost its lustre and whose bluish, bulging appearance spelled hemorrhage, and upon opening the dura the free venous hemorrhage was, I admit, somewhat puzzling. Where did it come from? There were no clots. What brain I saw, was uninjured. Then I thought of the scalp wound. Over the dural opening I placed a piece of waxed paper, rubber tissue not being available, first having inserted a subdural drain of the same material. Covering the bone defect with the scalp flap, I opened the original scalp wound which was posterior to and below my opening in the skull. I found some clotted blood and a profuse hemorrhage at the base of the wound. There was a linear fissure in the skull and I concluded that through this fissure the blood found ingress into the cranial cavity, as the sutures made escape to the surface impossible. Of this I could not be certain and if, after my hemostasis of the scalp wound, the subdural hemorrhage still continued, I had but one alternative and that was to find and stop the bleeding sinus. I resutured the original scalp wound, having ligated the offending vessel and was pleased to see that there was a cessation of bleeding from my subdural drain. In a half hour the patient recovered consciousness, and though weak, his pulse, which had been fifty, was now ninety, and in two hours he spoke rationally and could see. He improved rapidly and in forty-eight hours I removed the sub-dural drain. In a week, both my operative wound and his original wound had healed by primary union and his only complaint was that I confined him to bed. In another week he was ready to go, minus a piece of parietal bone, 'tis true, but otherwise in perfect physical condition.

This case is rather unusual in that it is a case of sub-dural hemorrhage due to bleeding from a vessel in a scalp wound. I have never seen a similar case recorded. For rapidity of symptom development I have never seen its equal. I doubted my ability to get the patient on the operating table before he died, so rapid and severe were the symptoms. This course of symptoms was further portrayed in the operative findings, as evidenced by the lack of any clot beneath the dura. Free drainage for the blood and removal of its source, was sufficient to alleviate all symptoms and with recovery from the effects of chloroform, the patient became normal. The day following operation, the patient's pulse became normal and so remained; his temerature was always normal and his entire course until he left the hospital was absolutely uneventful. I might mention, that while on the operating table his respiratory rate was eight per minute.

Before mentioning the next case I feel impelled to comment upon the most astonishing amount of injury the human body seemed capable of suffering without fatal results. Sometimes I have been so impressed by the extensiveness of the injuries that recovery has appeared almost miraculous. I recall the famous case of the miner whose frontal lobe was penetrated by a crow-bar, entering through the superior orbital plate, I believe. This case is still famous, but no doubt its glory will be dimmed as the pages of war-surgery literature are opened.

Case II, which I desire to record, is somewhat similar in that there was brain injury, without any symptom, neurologically speaking. The patient was admitted to the hospital with a diagnosis of "compound fracture of skull, and laceration of the brain." He was an ambulatory case. About one inch to the right of the external occipital protuberance there was a pulsating mass of granulating tissue, soft and readily compressible. But the patient presented no subjective symptoms of any kind. Under a general anesthetic, I removed the granulation tissue and dissected it away from what I found and expected, 'gray matter'. This particular cerebral convolution, denuded of covering, rough and irregular, had herniated through an irregular hole in the occiput, about the size of a quarter. The edges of this defect were rough and some protruding spicules were imbedded deeply in the hernia cerebri. These were removed and the edges of the entire opening were smoothed and the brain dissected away from the adjacent flap, to which it had become adherent. This left a clean cut hole through scalp and dura through which the brain protruded. The hole in the scalp was about one-third again as large as the defect in the bone. In addition there were three linear frac-

tures radiating from the edges of the bone defect, but no sign of depression. From an area above the wound I resected a flap of scalp and covered the brain, first covering it as I did in the previous case, with a piece of waxed paper, having my flap sufficiently extensive, so that the exposed brain was covered by the center of the flap. Two of the stitches of my flap became infected, but had no effect upon the ultimate result, which was a very effective covering over the previously exposed brain.

Now the interest in this case was not of an operative nature. A piece of shrapnel had torn away scalp, bone and undoubtedly some brain, how much I don't know. Nature immediately inaugurated healing processes with her ever-ready granulation tissue, but in her anxiety, she did not discriminate between the brain and scalp and a firm union was being developed between them. Not that it materially mattered in this case. I but mention it to better illustrate that, nowithstanding the abuses shrapnel, nature and myself, heaped upon this particular area of the occipital lobe, no untoward symptom of any kind was ever visited upon the patient. A week was the limit of his confinement to bed and in three weeks he left the hospital without sign or symptom, save a slight pulsation where had been his wound. Not so fortunate was the patient I shall mention as Case III, though were his future course followed, I am sure it would prove by far the most interesting.

This patient was admitted with diagnosis "compound fracture of skull, lacerated brain, foreign body in brain." He was an ambulatory case, a cheerful, healthy looking patient, and it was only when my questions were unanswered, that I learned that he was unable to talk. His was a true motor aphasia. An examination of his injury revealed a most interesting condition. On the left side of his head in the temporal region there was a hole not over half an inch in diameter, and as cleanly cut as though it had been made with a bone drill. Into this hole, one could see to a depth of about two inches, though I never accurately measured the depth of the wound. This hole extended directly into brain substance and throughout its extent, was of uniform diameter. At its base one could discern only brain and there was no evidence of a foreign body though his diagnosis tag so stated and no statement could be found noting its removal. Several attempts at *x*-ray proved unsatisfactory as nothing definite could be ascertained. I did not feel justified in probing for a foreign body even with Cushing's excellent soft catheter, and suction method, so I preferred evacuating the patient to some hospital where better *x*-ray apparatus and tubes were available.

The patient's condition as I remarked was most excellent save for the motor aphasia. His reflexes were perfectly normal. No other sensory or motor disturbances of any kind could be found, nor were there any evidences of disturbances of any kind in the special senses. He could hear and understand whatever was said to him; he could have been ludicrous, had they not been pathetic. He would frame his lips for a word, then make a desperate effort to formulate a sound and he read and write and his efforts to speak would would utter only grunts. After several efforts, he would smile, shrug his shoulders and shake his head in a hopeless fashion, as though saying, "No use, it can't be done." Each morning when making rounds, I spent a few minutes with him, and explained to him that he must practice trying to speak. I tried to teach him my name. At the end of a week he could say "Waw-waw," which was close enough to Wagner to make me feel that there was hope of accomplishing something eventually. Of course, cases of this type could not be retained at our hospital, as the beds were needed for the more recently wounded so this most interesting case had to go. I did not close the wound as there was a possibility of a foreign body being present, the removal of which might have been necessary. Yet I would so much have liked to know the eventual outcome. A hole in the brain large enough to admit a good-sized pen holder to a depth of two inches and only a motor aphasia as a result.

There are other cases, of more than a passing interest, which I shall mention at some future date. These three I consider of interest and regret that I have not accurate clinical data to present with them. However, though much of value is lost through this lack, I have at least mentioned the most salient points, standing out, as they do, in my mind, as cases of such unusual aspects, as not to be readily forgotten. And yet they are but a few of many thousands. And it is such cases that have taught the surgeons conservatism that is almost radical, at the same time justifying radicalism that is really conservative, as exemplified in the treatment of shattering injuries of bone and soft parts where not only has the limb been saved but a most useful limb has been added to the triumphs of surgery. And compound fractures are

no longer a bugaboo, but a surgical condition that can be met as sanely as any other surgical condition. Yes, surgeons who have cared for the wounded "over there" must surely be returning to civilian practice bubbling over with a roseate optimism.

162 West 54th St.

THE EXPERIENCES OF A RHINO-LARYNGO-OTOLOGIST WITH THE AMERICAN EXPEDITIONARY FORCES.*

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(Continued from the April Issue.)

About the first of March of last year, I was ordered to join my old unit at Etretat, to take up my special line of work, as Cocks was going back to the States. I was sent temporarily to an English Base Hospital in Havre, in which there was a nose and throat department of five hundred beds. The nose and throat specialist (I met him later), a most capable man, was off on leave. This hospital had formerly been a beautiful yacht club, situated on the shores of the English Channel. I might have had a very interesting service if the Germans had not launched their spring drive when they did, making it necessary to take in all kinds of cases. At times we had between five and six hundred patients changing daily, who had to be cared for by four medical officers, six trained nurses and about ten voluntary aids.

However, I had a chance to do quite a little special work as ambulatory cases from other hospitals were sent here for diagnosis and treatment. I operated on a few cases of mastoiditis under very trying conditions, for there was hardly an instrument in the whole surgical kit that I had even seen before. Instead of curettes, I had to use gouges with heavy right-handed handles, none of the blades of which could ever get into an antrum. In spite of the handicaps, the cases got well—another of the marvels of war.

During my stay at Havre, I was asked to visit a nearby concentration camp at Hafleur for the purpose of reclassifying cases for the line. In all I examined nearly a thousand nose, throat and ear cases. The work had to be done in a hurry, but, nevertheless, I got a great deal of enjoyment out of it. The majority of the men suffered from delayed symptoms of gas poisoning, or said they did, and it was indeed difficult to pick out the "shrimshankers," as the English call them. There was a large number of men complaining of deafness in one or both ears. It was impossible to do justice to these men, as there were no means at hand for testing hearing accurately, nor did one have the time. The patient's facial expression, his ability to hear the spoken voice, the looks of the drum, counted for more than anything else. I always gave the patient the benefit of any doubt. Here I also saw the Australians intimately. They measure up very well to the standards of our own men.

Again I was transferred back to the Base Hospital, and here I established a most enjoyable and instructive clinic which I would have regretted to leave, if it were not that sitting down in a closed room got on my nerves after my exciting experiences at the front.

The first thing that impressed me on my return to the Base Hospital was the large number of the personnel and nurses who were suffering from ailments of the nose, throat or ear. Etretat may be a very lovely place in summer, but at any other time of the year the wind blows through the narrow streets unmercifully, and there is almost constant rain. It was no wonder that there was infection in the air. There were a great many sinus cases, many of them acute. Fortunately, most of them were cured without operative interference. Every case was given the benefit of an *x*-ray picture, taken on a make-shift machine by Lieut. Austin Hobbs, an excellent radiographist, who unfortunately died last summer.

Besides these patients, the gas patients began to pour in. You will recall that the Germans used a large amount of gas in the spring drive, and the cases that came down to us were in a pitiable condition; for the burns were not confined to the nose and throat, but occurred on any part of the body that was exposed or particularly moist.

I determined to make a special study of the gas cases, and so made a thorough examination of the nose and throat, paying particular attention to the larynx. It will be impossible to go into details here except to say that I thought the treatment that had previously been used universally was useless—the giving of inhalations of steam after attempted neutralization of the posion. I felt that the result of the gas was a burn and that any lesions should be treated like burns elsewhere on the body. So, each day, I applied liquid albolene to the eroded parts under indirect illumination, particularly to the mucosa of the larynx. The patients were then given a bottle of albolene and a long medicine dropper, im-

*Prepared for the Eastern Section of the Society of Otology, Rhinology and Laryngology, Feb. 15, 1919. Because of lack of time, this paper was not read.

provised after the fashion of the Yankauer dropper. They were told to use the medicine every hour or so. I also devised an inhalatorium in which the men would sit for two hours in the afternoon inhaling the moist vapor of compound tincture of benzoin. I am happy to say that this treatment met with uniformly good results. In the American Army a special service for the treatment of gas cases was created under Gen. Thayer and Col. Gilchrist, but whether any good came of it or not I do not know.

The battle casualties were very few, other than the gas cases. One met with an interesting case now and then, such as a gunshot wound through the orbit or elsewhere. As we had no eye specialist it was necessary for me to examine the eye cases, and to use my own judgment as to whether I was capable of treating them or not. You could have judged of my feeling in the matter if you had seen the ambulance loaded with cases who had to see the eye specialist in Havre every Friday. Of course, I had to do enucleations. But that is now classified as a minor operation.

WITH THE AMERICAN ARMY,

About the middle of May I received my orders to report to the American Army. I had hoped that I would be able to go into the field again, where I felt that I belonged after the wonderful experience I had had. You can well imagine my dismay when I learned that I was to report to Base Section No. 2, the headquarters of which were in Bordeaux. Again my luck was with me, for I had to report to Col. Henry A. Shaw, whom I consider one of the most efficient officers in the Army. He is an excellent administrator and has such a charming personality that all who worked under him loved him. I was immediately placed on important work about as far removed from nose, throat and ear work as it could possibly be. In other words, I commanded hospitals, requisitioned hospitals, built hospitals, became a sanitary expert and became the head of the billetting department of the Base Surgeon's Office.

Although I did little nose, throat and ear work myself, I was able to see a great deal that was going on in the base hospitals, camp hospitals, and in the regimental infirmaries. I was amazed to find the number of men in our specialty who were doing line work. I recall very few of them by name, but I know that Lieut.-Col. Samuel J. Kopetsky was with one sanitary train and I met Lieut.-Col. Chas. J. Imperatori with another. I think it was a compliment to their adaptability and their knowledge of administration.

The placing of competent men in our line of work on administrative duties was a serious handicap to the Army in many ways I am sure. Col. McKernon was sifting the lines for competent men. The general organization he planned and the amount of work that was accomplished was not all that could be desired, and I am sure he would have felt more satisfied if he could have been able to call upon those men whose ability he knew. However, the work we were ordered to do was not without its rewards, and it will undoubtedly stand us in good stead in the future. Its chief value lay in the necessity of perfecting ourselves in diagnosis and preventive medicine. During my stay in the Army it was necessary for me to make thousands of physical examinations, both at home and abroad. It was also necessary for me to examine many kinds of wounds and to operate or assist at operations on any part of the body. Moreover, I became an expert on skin diseases, particularly when it came to scabies, impetigo and spotting pediculi. I even learned to pull teeth, and once almost became a obstetrician. In the realm of preventive medicine, I learned how to swat the fly, build latrines and grease traps, and to curb epidemics of dysentery and influenza. In fact, I learned more about medicine that I ever thought there was in medicine, and feel myself perfectly able to qualify as a general practitioner. What was of equal importance, I learned how to command men and to read men. Not for one moment do I regret having had to give up my special line of work, and I am sure other men who were placed in a like position feel the same.

I am not acquainted with the organiation of the nose, throat and ear work of the Army as a whole. I can only speak of my personal observations in the neighborhood of Bordeaux, in which territory were located some of our largest and best base hospitals. Base Hospital No. 6 (Massachusetts General Hospital) was located just outside the city. Our special work there was in the hands of Capt. Tobey, who managed it most capably. Base Hospital No. 3 (Mt. Sinai Hospital, New York) was sixty miles away, in a small village called Veauclaire, near Montpont. Here I found Major Walter M. Brickner, the editor in chief of the AMERICAN JOURNAL OF SURGERY, in command of the surgical work. The nose, throat and ear work was in the hands of Major Sidney Yankauer. No more need be said. Yankauer showed his usual foresight by bringing his own instruments from America. In his kit he included his instruments for laryngoscopy, for which he had a great deal of use, especially in the treatment of gas cases.* About eight miles from the city was the

*Many capable specialists were working in Base Hospitals outside our Base Sections, among them Capt. Henry H. Forbes, who informs us that most of the men had a full equipment. I can only speak of the locality in which I worked.

large hospital centre at Beau Dessert, which started in with a thousand beds, had nearly twenty thousand when I left, and would have been capable of taking care of another twenty thousand if the war had lasted until spring. Then there was the large hospital centre at Limoges, which was mainly housed in the china factories.

The nose, throat and ear work in this base section may be divided into three classes:

(1) The work in the regimental infirmaries;
(2) The work in the camp hospitals;
(3) The work in the base hospitals.

1. *The work in the regimental infirmaries.* One can well understand that at a large sick call of a morning, it is almost impossible to go into a detailed history or treatment of every case that comes along. It is marvellous that the men receive the good treatment they do, and it is a credit to the acumen of the average medical officer. For the ordinary rhinitis, pharyngitis or laryngitis only the simplest medication is used, such as a dose of salts or castor oil, swabbing the throat with silver nitrate or giving some potassium chlorate or Brown's cough mixture. It is a routine measure to examine every throat when there is a complaint of soreness, so that very few cases of acute tonsillitis go undiagnosed. These cases are at once taken into the hospital and placed on gargles and antirheumatic treatment. It is my belief that any simple condition that warrants hospital treatment receives better care in the Army than in civil life. In civil life such patients might go to a clinic and then be sent home to follow up treatment (which they seldom carry out), but they would never be taken into hospitals and made to stay there until they got well. Of course, what we call a hospital in the Army—that is a Regimental Infirmary—is far different than the hospitals we are accustomed to over here. For often a tent is used, or else one or two rooms of a dilapidated house.

I regret to say that the ear conditions seen in regimental infirmaries are not diagnosed very accurately, but that is only natural, when one considers that the average practitioner does not pretend to know much about ear conditions, and "over there" he suffered from lack of proper instruments for examinations. If the patient did not complain of much pain, a cursory examination was made. Sometimes an ear was examined for cerumen and perhaps washed out. If the patient had pain or temperature, as a rule he was transferred to a base hospital, where more careful treatment could be given him. I think that the general principle throughout the entire American Army was to always give the man the benefit of the doubt and, summing it up in general, I would state that the care was better than the men would have received in civilian life.

2. *The work in the camp hospitals.* Most of the large camps in our base section had well-organized hospitals attached to them. The number of beds to the size of the camps was not proportionate in the beginning, there being far too few beds; but it was always possible to enlarge the capacity of the hospital by erecting hospital tents. Toward the end of the summer, most of these hospitals were enlarged so that they could hold four per cent. of the total command. The greatest trouble was the impossibility of getting a suitable personnel. We were very hard up for medical officers, as few casual officers were sent over until the end of the summer, and many of those that did come to us unattached were what might be termed substandard. I mean by that, that our best men, from the medical point of view, were attached to base hospitals and the other good men were needed for administrative purposes. The result was that the Base Surgeon, Col. Henry Shaw, had to make use of unknown material and men were often sent to places where they did not fit in. Among all this crowd I seldom met a nose, throat and ear specialist, so that one can well understand that there was a great possibility that our special line of work would be neglected. In making this criticism, I want it understood that it was not always the fault of the medical officer that he was classified as substandard. It was merely that he was a square peg trying to fit into a round hole. There was one saving grace, however, and I am glad to get this opportunity to pay this compliment to the "regulars." Most of them were excellent, all-round physicians and surgeons, and thus they knew a great deal more about the nose, throat and ear than the average medical man from civil life.

In my rounds of the camp hospitals, I was often asked to look at an ear case, and in one or two instances I saw cases of acute mastoiditis which demanded immediate operation. As the camp hospitals were not at that time fitted up well enough for major operations, as a rule, these cases were transferred as soon as possible to a base hospital. But I recall one camp hospital that had an excellent operating room, a reputable ear specialist attached to it and every facility for doing major work except a suitable set of instruments. I hope I am not treading on the toes of any member of this society when I say that the "nose, throat and ear case" supplied to Army hospitals is the worst hodge-podge of instruments I have ever seen. When I looked over this set of instruments with the aural surgeon at this post, I remarked to him that I had never seen a set

of instruments look so expensive and be so useless. There was hardly a single instrument for doing a mastoid operation, not a single curette that would go into an antrum and not a single rongeur. Yet there were all the instruments for doing Ballenger's radical ethmoid operation. While I was making my critical remarks, a certain Regular Army officer came in who heard part of what I was saying. He looked at me witheringly, and then informed me that he had been on a board with two or three eminent aurists who were asked to select those instruments. However, when I pointed out to him the instruments that were missing for a mastoid operation and that the patients would probably have to be transferred elsewhere to be operated upon, he agreed with me that the set was not all that it might be. I suggested to the surgeon that he send down to the base hospital for the instruments which he needed, which he did.

3. *The work in the base hospitals.* In the large base hospitals at the rear, ideal conditions for diagnosis and treatment, operative and otherwise, prevailed. Suitable treatment rooms were appointed and in almost every instance a renowned specialist was placed in charge. At Base Hospital No. 6 was Capt. Tobey and at Base Hospital No. 3 was Major Yankauer and men equally well known, but whose names I do not now recall, were at the others. Everything was done as perfectly as it would be done in our best hospitals at home. Nothing that I know of was missing, except instruments for doing specialized work, such as suspension laryngospy. As I stated before, Yankauer had brought his own instruments for this work with him, and so was able to do important work that the other men could not. All of the men in our line were very much overworked and later most of them had to take on one or two assistants.

The general run of cases were not particularly interesting and differed very little from the clinic cases we see over here. One was surprised at the number of cases of hypertrophied and diseased tonsils, which were removed when it was felt that the man's efficiency as a soldier would be increased by so doing. There were hundreds of gas cases with varying symptoms of interest to the nose and throat specialist and, any number of cases of chronic purulent otitis media, most of whom came in in the second draft. When I was an examiner for enlistment in the early days of the war, I know with what care we excluded ear cases, particularly discharging ears, and I believe the examiners for the first draft were just as particular. But, like England and France, the time came when we couldn't afford to be so particular. A bunged-up ear and a pair of steel-rimmed spectacles were not considered of sufficient importance to keep a man out of the Army. The number of cases of acute otitis media were comparatively small and naturally there were few mastoid cases. The report of the Surgeon General's Office for the year, June, 1917-1918, shows that the number of acute ear diseases in the entire Army, at home and abroad, were comparatively few. This was due in good part to the excellent general physical fitness of the men and to the usual healthfulness of an out-door life. I have never felt so positively that so many of our nose, throat and ear troubles were caused by our going from steam-heated houses and apartments out into damp, unheated air as I have since I came home from abroad. Men that live in an equable atmosphere, even though they and the air be damp all the time, are not as likely to catch infections as men who are making sudden changes from one atmosphere to another.

During my stay in Bordeaux, where I was placed in charge of the medical care of all troops in billetted areas, I had an opportunity of observing troops under real war conditions. During the summer it was easy to find accommodations for the men, as they could readily be moved out in "pup" tents if the billets were not suitable. An epidemic of fly borne diarrhea and dysentery broke out during the summer, but was soon placed under control. In the latter part of September, while I was commanding the Officers' Convalescent Hospital at Biarritz, from which I was recalled to take charge of the billetted areas again, we began to get our "flue" cases from the States, which literally poured in by thousands. I do not believe that I have ever gone through a more distressing time. Most of the sick men were new recruits and our statistics showed that a large percentage had been in service less than three months. This again proves the old army statement that men who have been recruited less than three months go through a negative phase of disease, and then will develop any known contagion, from whooping cough to meningitis. But after that time, they enter the positive phase and remain unusually healthy.

It is impossible for me to enter here into the various aspects of the epidemic and the way we were able to control it in a very short time. We had about seventy thousand cases (I do not claim this to be an accurate figure) in the force abroad, many of whom developed pneumonia, but our mortality, I believe, was not as high as in the States. All of us felt that the "flue" was not ordinary influenza, and many of us are still in doubt as to the causative agent. In some cases, positive blood cultures showed the meningococcus, type C, and cultures showed al-

most all the pyogenic organisms. It was readily noticeable—and I hear it was the same in this country—that the number of nose, throat and ear complications were comparatively few, and seemed to be merely incidental. This, in itself, to my mind, is an excellent argument against the disease being caused by the influenza bacillus, for all of us know how frequent are the ear complications of influenza as we usually see it.

I realize that this paper gives you no statistical data of any value. But my object in making these remarks is to let you know, in a general way, the amount and kind of nose, throat and ear work that was done abroad under handicaps which, at times, were well-nigh insurmountable. No reputable specialist at home would consider that it was possible to do the work that was done under the conditions that presented themselves. Ingenuity will always come to the fore when the necessity arises. There will be a great deal said and written about the new operative procedures in our own line and others. I refer particularly to the treatment of battle casualties, especially of suppurative wounds and the work in plastic surgery, which I regret that I had no opportunity to see. Very few of us thought of Carrel-Dakin solution and dichloramint before the war, but many of us are now trying these solutions in our work to-day. We shall no longer fear to do reconstructive surgery, and other men besides our departed friend, Dr. Roe, will do excellent work in this line. So, taking it all in all, no matter what branch of the Army the nose, throat and ear specialist went into, he was bound to come out a better and wiser man. For my own part, I consider the experience invaluable, and I am in hopes that when the Army veterans of this Society get together they will be able to present a mass of new material that will advance our knowledge considerably.

2178 BROADWAY.

THE SCIENTIFIC HABIT OF MIND

While the acquisition of the rudiments of medical knowledge is a part of medical education and a somewhat important part, it is nevertheless true that the sum of medical knowledge is so vast that even were it desirable to attempt to teach it, it is not possible for any single human intellect to digest and retain it. Much more important in medical education than the acquisition of mere knowledge is the development of certain specific qualities and habits of thought, the summation of which may be described as the scientific habit of mind.—GEORGE BLUMER, in *The Journal of the American Medical Association.*

PROSTATECTOMY.

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Prostatectomy signifies an operation for the removal of the prostate gland. It is indicated when the prostate becomes so enlarged from any cause as to interfere with micturition to such an extent that the health of the individual is in danger of serious impairment. Certain prostatic neoplasms may develop slowly and induce no symptoms excepting more or less dysuria for several years, then sudden urinary retention may supervene. The patient soon discovers that immediate temporary relief is afforded by catheterization, and usually thereafter becomes a catheter habitué.

The "catheter habit" may continue for months or even years, but the patient ultimately finds that further catheterization is impossible. This is oftentimes due to unequal enlargement of the three prostatic lobes and the marked urethral tortuosity thus produced. The surgeon may be called, after repeated attempts have been made to introduce a catheter, and unfortunately find that considerable trauma has been inflicted upon the urethral interior. Not infrequently it will be found that a false passage to the bladder has been thus created, which always complicates matters for both patient and surgeon because of the greater likelihood of infection. The bladder and possibly the entire urinary tract already may have become infected, in which event the false passage increases the clinical dangers and makes the prognosis more uncertain.

"Prostatism" or the "prostatic state" is usually thought of in connection with old age, but may be encountered in individuals much younger. In the aged it is usually due to benign enlargement of the gland (adenofibroma), whereas enlarged prostate in the young is nearly always due to malignancy or to acute infection. Insomuch as acute infections generally recover under adequate medical treatment, cases of that character do not come within the purview of this paper.

While it may seem suprfluous to write anything further on the subject of prostatectomy, after what has already been said by Hugh H. Young, John B. Deaver, and others, yet the operative technic has hitherto seemed so complex that some otherwise most excellent surgeons appear to have become confused and dismayed when prostatics were sent to them for operative treatment; hence, this paper is designed to briefly outline a simpli-

fied method following which no surgeon need hesitate to operate.

There are two routes of approach to the prostate, *viz,* (a) the suprapubic, and (b) the perineal. The surgeon is quite prone to follow the one most familiar to him; but the exercise of mature judgment will demonstrate the existence of many valid reasons for each method. It may be stated as a general proposition that the suprapubic route is most suitable in patients who are thin or at least not fleshy; on the other hand, it quite naturally follows that the perineal method of approach is better adapted for those who are fleshy or have thick and pendulous abdominal walls. It must be remembered, however, that where for any reason a two-stage operation is to be employed, the suprapubic route must always be selected.

The two-stage operation ordinarily should be performed only in cases where the patient has had repeated attacks of urinary retention, or when in consequence of a large amount of residual urine which has existed for a considerable period of time the bladder and the kidneys have become so badly crippled that the patient's life is endangered and where prolonged operation and protracted anesthesia made necessary by extensive manipulations would cause a high mortality. Under such circumstances, *i. e.,* in the presence of crippled kidneys, vesical infection, and urethral tortuosity preventing catheterization, suprapubic cystotomy should be performed for the purpose of drainage. After restoration of normal kidney function and the vesical infection has subsided, the suprapubic wound may be enlarged and the second stage of the operation completed. With reference to use of the catheter: I believe the statement can be substantiated that where a catheter can be introduced through the urethral lumen and retained, as good or even better results may be secured by this method of procedure than by preliminary suprapubic drainage without any danger whatsoever to the patient. Therefore, it becomes obvious that any patient who can be successfully catheterized will not need the two-stage operation.

Team work has been recognized in nearly every walk of life, and people are not slow to recognize that the best results are to be obtained by the combined efforts of all working in their respective fields of endeavor; and insofar as the medical profession is concerned, team work has but one object in view, *i. e.,* the ultimate recovery and restoration to health of the sick. In the "prostatic state" the urologist conducts the urinary tests,—chemical, quantitative and eliminative,—and makes his suggestions; then under dietetic, reconstructive and eliminative measures the internist soon has the patient ready for operation; and the surgeon then finds that the most perplexing part of the work has been completed, and by apseparated from their capsular beds and removed plying the proper operative technic the prostate is extirpated.

The suprapubic route: Equal care should be exercised in preparation of the patient for suprapubic prostatectomy as for any other abdominal section. The operative field must be shaven and thoroughly cleansed the day before, and iodine again applied at the time of operation. The gastro-enteric tract should have been kept in good condition for several days, and the rectum must be thoroughly emptied the morning of the operation. This is best accomplished by one or two low enemas of normal saline solution.

In emergency cases where the bladder is much distended from urinary retention, the viscus must be immediately opened. A median incision is made through the skin, subcuticular fat, fascia and muscles; when the space of Retzius is reached it will sometimes be found that the peritoneum "dips downward" over the anterior aspect of the bladder; this must be pushed upward out of the way to avoid opening the peritoneal cavity. The vesical wall must be incised as high as possible for two reasons: (a) when the viscus is emptied of its contents subsquent contraction will leave the opening in the most favorable plane for tubal drainage, and (b) by making a high opening the surgeon avoids the plexus of veins about the vesical neck which is a very important item in preventing hemorrhage. In cases where catheterization has been possible the bladder, which has been kept clean by irrigations for several days, is distended with normal saline solution before beginning of the operation. In emergency cases the two-stage operation may have to be performed, and this must be determined so soon as the vesical cavity is inspected and palated. However, where the general condition of the patient warrants further operative measures, and the vesical pathology is not too extensive, it is best to complete the operation immediately. After the opened viscus has been cleansed of detritus, and all bleeding points controlled either by clamping and twisting or by ligation, the surgeon then attacks the prostate.

If there exists any stricture due either to traumatism or previous Neisserian infection, it can be

easily overcome by incision with the Otis urethrotome. The tortuosity of the canal from unequal enlargement of the prostatic lobes never interferes with the insertion of a steel sound, with the finger in the vesical cavity acting as a guide. It is wonderful what the steel sound accomplishes in aiding the surgeon during prostatic enucleation. By having the assistant depress the penal end of the sound between the patient's thighs, using the perineum as a fulcrum, the prostate is carried away from the rectum and brought well against the pubic arch. The sound also acts as a guide in protecting the urethra from injury and as a means of steadying the prostate during the process of enucleation; and if urethrotomy has to be practiced pressure of the sound controls urethral hemorrhage.

Enucleation of the gland is best accomplished by using long handled scissors curved on the flat. Guided by the left index finger the capsule is incised over each lateral lobe, then with the same index finger the left and then the right lobes are separated from their capsular beds and removed. The middle lobe can be easily enucleated through either of these capsular openings. Hemorrhage during this stage of the operation requires no particular attention, but must be controlled later. I have no confidence in rubber bags placed within the prostatic capsule and inflated to control the hemorrhage! it takes too long to suture the capsule, and besides it is a very difficult procedure. The quickest and best method is to insert a large Nelaton catheter, packing around it in the capsular cavity a long strip of gauze, one end of which is allowed to protrude from the suprapubic wound so it may be removed later.

The next step is closure of the vesical and abdominal walls. It is advisable to use the regular tier suture method, leaving room for the insertion of a rubber tube five-eighths of an inch in diameter perforated near the lower extremity so that drainage will continue should the end be occluded by blood clot or pressure against the vesical wall. The last suture above the tube and the only one below it should be applied as follows: Use twenty-day catgut for all sutures; let the last one above the tube and the only one below it be long enough for one end to pass through the vesical wall on the left, and the other through the right side; insert the left-to-right suture through the muscle and the right-to-left suture through the muscle, then through the fascia, fat and skin, so that when the sutures are tied on either side of the drainage tube the abdominal wall is so closed that urinary extravasation should the lumen of the tube become occluded will not enter the abdominal tissues but pass outward around the tube. The outside dressing is composed of clean gauze above and below the drainage tube held in place by adhesive plaster.

A very important part of the technic is the manner in which the suprapubic tube is held in position: Take a two inch Z. O. adhesive strip fourteen inches long and divide this in the middle one-half its length; then divide each half in the middle thus making four strips of one end. Apply this over the dressing so that the two outside strips pass beyond the tube over the dressing, and the two middle ones over the wound and around the tube, one to the left and the other to the right side. Any traction thereafter exerted on the tube does not "pull" on the patient but on the dressing. If an ordinary catheter be used, it may be fastened into the penis in the same way.

Before the patient is permitted to come from under the influence of the anesthetic, normal saline irrigation should be started to demonstrate that both the catheter and the tube are patent. The patient is then placed in bed and continuous irrigation practiced for a few hours until the water returns clear; then irrigate every three or four hours for three days when the gauze packing may be removed; then two or three times daily for the purpose of keeping the vesical cavity clean for one week; then the tubes may be removed.

The after-treatment resolves itself into simple care of the patient and watching the drainage while the tubes are allowed to remain in position; then keeping the patient as dry as possible after the tubes are removed. The suprapubic wound usually closes within ten to forty days after the drainage tubes have been discarded. The patient may be then considered well, and is able to urinate in the natural way.

The perineal route: The perineal approach to the prostate is not unlike any other perineal operation, excepting that I prefer the half-moon flap incision method. That is, begin the incision in the skin over the left ischial tuberosity, thence extending it upward in a circular course until it reaches the posterior portion of the scrotal attachment, thence downward over the ischial tuberosity on the right side. This skin flap is dissected backward nearly to the anus; a central incision is then made through the underlying tissues until the membranous urethral comes into view; this can easily be recognized by palpa-

tion over the urethral sound which has already been introduced. After the central incision has been extended through the urethral tissues, a guy suture is inserted in either side, and as the sound is withdrawn Young's retractor is introduced through the opening in the membranous urethra.

The next step is to bring the prostate into the operative field by the assistant making downward traction. The surgeon then opens the capsule on first one side and then the other, enucleating the respective lobes with the finger or blunt scissors; after the lateral lobes have been thus removed the middle lobe can be easily enucleated by pushing it into the right capsular opening with the left index finger inserted into the opening of the left capsule. Of course, the ideal operation is not to open the vesical cavity; but it is sometimes impossible to avoid this. If such an opening is made, it should be closed by immediate suture if the procedure can be executed with safety to the patient. After placing in position a catheter which is to be retained in the urethra, the capsule is packed with gauze which is allowed to protrude through a new opening made in the middle of the skin flap. The incision in the membranous urethra is closed, and the moon-shaped skin flap carefully sutured in position.

The vesical cavity is kept empty and clean by repeated irrigations with normal saline solution through the retention catheter. If the vesical wall has been so extensively damaged that it cannot be sutured, a drainage tube may be inserted and gauze packed around it sufficiently tight to control hemorrhage. If such a tube is used continuous irrigation may be practiced as in the suprapubic method. If the use of a perineal tube does not become necessary, the retention catheter is allowed to remain in situ until the perineal wound has healed. The healing process rapidly progresses after the third day when the gauze has been removed from the capsule. A urinary fistula sometimes obtains for a short time and then closes spontaneously, after which urination becomes normal.

The after-treatment is quite similar to that applicable to the suprapubic method *i. e.*, simply general care and especial attention to the comfort of the patient by keeping him as dry as possible.

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WEDGE DILATATION OF THE MALE URETHRA.

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It was necessary to improvise an apparatus last year to replace broken Kollman dilators, which I could not get repaired at that time.

A sound 9 inches long is made by filing down a piece of steel bar 5/16 inches square, to the pattern shown. The first 2 inches is left square, for a handle. The next 2 inches is shaped into a shank, by cutting into what is to be the bottom of the sound. The first half of the shank, from the handle, is 1/8 inch thick. The remaining 5 inches is the belly, or dilating part.

The belly and shank are rounded on the bottom to a half circle in cross section. The tip of the belly is rounded on the sides and below. The sides of the shank are slightly concaved. The top is left flat, except that the edges are rounded a bit to prevent cutting.

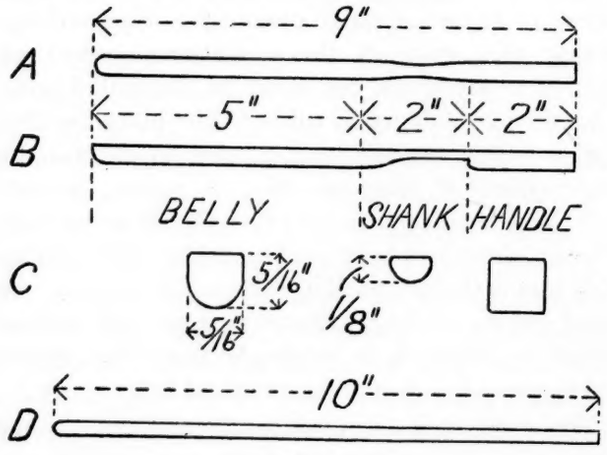

Fig. 1

A similar sound is made from 1/4 inch square steel. The belly of the large sound is about 25 French; that of the small one about 20. For extensive use it is better to make each sound in three lengths; 8, 9 and 10 inches.

The rest of the apparatus consists of sixteen round rods 10 inches long and 5 to 20 inclusive in caliber. They are rounded at one end. It is cheap and convenient to make them of brass drill rods. These are calibrated in English measure, but they come in so many sizes that the numbers of the French urethral scale can be approximated nearly enough.

To dilate: Introduce a sound, keeping the top toward the dorsum of the penis, till the shank lies in the meatus. Then introduce a rod, work-

ing it along the top of the sound with a twirling motion. To increase dilatation: Withdraw the first rod and substitute a larger one. Or leave the first rod in position and work in another one beside it. I sometimes have a sound and three rods in the urethra at once.

The large sound, with a 20 rod, stretches the urethra to 35 and the meatus to 25. Thus, the range of the apparatus is restricted by the size of the meatus, but not nearly so much as that of ordinary sounds. Within these limits it does as good work as the Kollman dilator. It works as well in large caliber strictures as in chronic urethritis. In small strictures I use the rods without the sounds, singly or in bundles. They do better than ordinary sounds, because they can be twirled as they are pushed in.

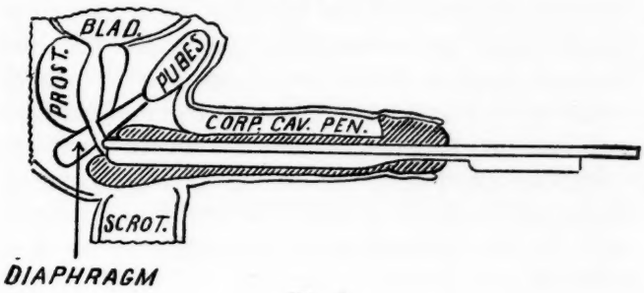

Fig. 2

It is better to dilate a stricture with two or more instruments than with one. A single instrument tends to drag a stricture back and puts a tearing strain on the normal urethra anterior to the lesion. Assume a stricture stretched by a stationary sound and a moving rod. Sound and rod bind on the stricture and on each other. But the sounds holds the stricture, against the tendency of the rod to drag it. Besides, the friction of the rod is largely used up on the sound. Thus, wedge dilatation of strictures lessens trauma. Of course, the same applies to rods used without sounds.

I do not know of any apparatus like this. But the principle is so simple that it has, quite likely, been used before. I report it, without interest in priority of invention, as a cheap, unbreakable contrivance, based on correct mechanics and not generally known.

Death and Fatigue

Death, viewed microscopically or in gross, is a phenomenon very closely related to fatigue. Certainly, fatigue is an important and necessary stage in the progress of a cell toward death. Conversely, to assure the recovery of our patient, if we can avoid cellular fatigue we will evade death.—C. M. Ramage, in *The West Virginia Medical Journal.*

A CASE OF IRITIS DUE TO 3RD MOLAR IMPACTION.

T. I. Leiche, D.D.S.
Chicago, Ill.

The Case history of Mr. C. P., Age. 42. In Aug., 17, the patient had a severe attack of iritis and neuralgia of the left side of the face, head, neck and shoulder.

Oculist's treatment: Sodium salicylate, atropine in eye—2 injections of strepto-staphlococcus vaccine. The attack lasted three weeks. He then suffered a nervous breakdown, and was sent to the country for two months to recuperate. He recovered slowly.

In Feb., 1918, a second attack occurred, which commenced after he had been exposed to cold. The attack lasted a week. Treatment as in first attack, but instead of vaccine he was given intra-venous injection of some other remedy.

He had no history of lues. Two Wasserman tests were made, both negative.

At this time he was referred to the writer. Skiagrams were taken of both dental arches. This revealed an impacted third molar in the upper left arch.

He was advised to have it removed, but refused such treatment. In Sept., 1918, he again suffered an attack. After having been in bed about a week he presented himself to have the impacted tooth removed.

It was decided to remove both the second and third molars under infiltration anesthesia.

Within 12 hours afterwards the iritis subsided and in a week the neuralgia had disappeared.

To date there has been no recurrence of the disorder.

Golden Jubilee and Victory Meeting of the American Medical Editors Association

At its meeting on June 9th and 10th, the members of the American Medical Editors Association will celebrate the Fiftieth Anniversary of its existence and the Victory in the World War. The activities of the association during the Liberty Loan campaigns, and in the enlistment of the Medical men in the service, leave no room for doubt as to its value to the country in time of war. Its service to the profession in time of peace is exemplified by their representative membership and long existence.

During the meeting many historical papers on Surgery and Journalism will be presented and all living past Presidents will attend. The meetings will be held at the Marlborough-Blenheim Hotel, Atlantic City, under the Presidency of Dr. Geo. W. Kosmak of the *American Journal of Obstetrics.*

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WALTER M. BRICKNER, M.D., F.A.C.S., Editor

NEW YORK, MAY, 1919.

SURGERY AND CANCER.

Surgical interference has been deemed the best treatment for carcinoma. So thoroughly is the profession accustomed to recommend the use of the scalpel for the treatment of tumors, "precancerous lesions," and malignant growths, that there is a general impression that surgery is eminently successful in limiting the development of carcinomatous disease, if the patient undergoes an operation during the first few months of the disease.

It is interesting to note that the worth of surgery in cancer is called into question by Seelye W. Little in a critical study of the subject in the *Boston Medical and Surgical Journal,* March 13, 1919. From theoretic considerations, logically developed, and from a pragmatic test, he inquires into the general subject as to whether *a* cancer is identical with the disease cancer. Pointing out that the cause of cancer must exist everywhere, "because cancer is endemic everywhere in the inhabited world," he raises a number of almost unanswerable questions as to why cancer exists in its various forms, at different ages, and with a variety of expressions. His conclusion that "*a* cancer is neither the disease cancer nor does it contain the cause of the disease permanently, if, indeed, it ever does," serves as the basis for a second conclusion that one is not justified in claiming that the removal or destruction of a cancer will or may cure the disease.

By a grouping of facts and figures he substantiates the statement, already accepted, that the death rate from cancer is steadily increasing despite earlier operation, improved operative technic, and more radical operative procedure. It is striking that, despite our increasing surgical knowledge and practice with reference to cancer, a decreasing death rate from this cause has not been effected. Perforce, he is obliged to answer negatively the question, does surgery actually result in a lower cancer death rate than would exist if surgery were abolished as the treatment for cancer?

Various statistical data are offered to indicate that "it is fairly within the truth to say that, without surgical interference and having reference to all cancer patients, the average length of life is at least two years from the time the patient first notices symptoms of the disease." On the other hand, from figures available, he notes that the average duration of life after operation for cancer was approximately two years and eight months.

The more startling evidence adduced indicates "that the cancer death rate is higher and increasing faster in the great medical centers of this country than in the comparatively unprogressive medical centers."

It is significant to note, for example, that cancer of the skin and cancer of the breast, both liable to early discovery and to early observation by medical men, with comparatively safe operability, evidence a greater increase in their mortality rate than is found in cancer of the stomach or liver where early diagnosis is unusual and early operation rare.

It is probably not true, however, that surgical treatment and surgical prophylaxis of cancer are definitely responsible for any increase in the cancer mortality rate. Halstead is reported to claim that 38.8 per cent. of the patients with breast cancer operated upon remain well for three years or more. Wertheim claimed only 25 per cent. successful results from his operative treatment of uterine cancer. William J. Mayo is quoted as believing that less than 30 per cent. of cancer patients can hope to be cured by surgery alone.

Under the present conditions of surgery and the increased education of the public as well as of the profession the value of surgical interference is of interest. It would appear to be true that surgery may possibly prevent a few cancers and may palliate suffering in some instances and in others prolong life a few months and in a very small number of instances, for a few years.

The most suggestive comment of Little is upon the general attitude towards surgery in the treatment of cancer. He states "our teaching and prac-

tice in the matter are absolutely incorrect, because we are attacking only the symptom or manifestation instead of the disease." Recognizing, as he does, the impotence and a lack of logic in the surgical treament of cancer, he still maintains that it is in general the best treatment we have for cancer, "though a very poor best."

While this pessimistic outlook is possibly supported by much of the evidence, it is equally true that whatever optimism there may be in the treatment of malignant growths is to be found in early operative interference. If life is prolonged only a few months, there is an abundant opportunity for the victim of the disease to order his affairs, safeguard his interests, and make such adequate arrangements as may be possible for the benefit of his legatees. If suffering is decreased and renewed hopes are established, there is a value in surgery which is not to be found in the ordinary type of non-surgical therapeusis. The data as recorded is assuredly insufficient to supply facts essential for an absolute judgment as to the worth of surgery in the treatment of cancer. While occasionally spontaneous cures occur, the road of the carcinomatous individual is sad to travel, and for the most part it soon leads with certainty to the grave. The surgical cures, even though they be judged by freedom from symptoms for a period of from three to five years, are far more numerous than spontaneous cures. The prolongation of life through surgical skill if in only 25 per cent. of patients operated upon, represents that much gain in health, ability, happiness and effort.

The fact remains that despite the possibility of overemphasizing the necessity of surgery in the treatment of cancer, it continues to be the most satisfactory and effective treatment available, even though the profession itself recognizes its marked and tragic limitations.—I. S. W.

ABDOMINAL SYMPTOMS FOLLOWING TYPHOID INOCULATION.

Everyone is acquainted with the local and general reactions, sometimes severe, that follow prophylactic typhoid inoculations, but the fact that abdominal symptoms and signs may develop, affording opportunities for surgical diagnosis, is not generally known. In a recent report to the Surgeon General from Camp Custer (Review of War Surgery and Medicine, Washington, D. C., April, 1919) Lt. Col. Irons says that 27 patients were admitted to the Base Hospital suffering from abdominal pain after typhoid inoculation. In 20 the pain was generalized, in one in the lower right quadrant, in 4, in the right upper quadrant and in both upper quadrants in two cases. Of the four patients who complained of pain in the right upper quadrant, two gave a previous history of having had gall bladder disease. In the two patients who had pain in both upper quadrants, one had had a previous attack of gall bladder disease; the other gave a history of typhoid some years previously. These cases are extremely interesting as showing that the anti-typhoid injections caused a recrudescence of gall bladder disease, in one instance the typhoid etiology having been proven. Of the 20 patients with generalized pain almost all were relieved by one or two bowel movements. In a few instances the pain was ascribed to tenderness of the abdominal muscles. The signs and symptoms usually come soon after the inoculation, in most instances within the first days.

Thirteen cases of cholecystitis were admitted to the hospital during the year, in addition to those mentioned and in three of these, the onset of the acute attack followed shortly after the inoculation. On the other hand of 290 consecutive admissions to the hospital for appendicitis, in only two patients was there a suspicion that the inoculation may have caused the appendicitis, so that Irons concludes "that typhoid inoculation does not appear to have played any demonstrable rôle as a cause of appendicitis or its recurrence." He also adds, "In every case of abdominal pain, appendicitis must be considered but attention to the history and other symptoms and signs should usually result in avoidance of mistakes."

We have deemed the abstracting of this report as interesting, not only as showing a novel place of immunological relations, but also as indicating the possibility of making a mistake in surgical judgment.—E. M.

LOCAL ANESTHESIA IN CHILDREN.

At first blush, the application of local anesthesia for operations upon children theoretically seems almost hopelessly contraindicated. That is why we are much interested in a recent report of Farr (Interstate Medical Journal, Feb., 1919), who cites 77 cases, including operations upon almost every part of the body, in which this method proved successful; in only seven was it considered necessary to administer inhalation anesthesia. Farr says that relatively speaking novocain is as safe in the child as in the adult. Moreover, the psychic element is not so important in children as in adults. In very young children, restraint may be necessary, but in the majority of children over four, no mechanical

restraint is necessary. Very often a bribe goes a long way in maintaining quiet during the operation. In only one case did post-operative vomiting occur, and this was in a patient with hypertrophic pyloric stenosis. It is absolutely necessary to be extremely refined in surgical technique when operating upon children under local anesthesia; rough dissection and manipulation is outlawed; Farr appropriately designates the method as "Healthy." This is especially true in the manner of handling the retractors. They must be slowly and carefully placed and not allowed to slip out of the wounds when the anesthesia is successful. The inspection of the abdominal contents is more perfect than under inhalation anesthesia, resembling that seen in the cadaver, when all the organs are flaccid. Vertical traction and tilting are used to bring the organs into view. Farr describes his method of infiltration in detail. Complete filtration of all the tissues is necessary before beginning the operation. The most important point, aside from this, is the avoidance of pain in making infiltration. This is done by making all secondary wheals from beneath, and by making subdermal rather than intradermal injections for the anesthesia of the skin." The fluid should advance into the tissue just ahead of the needle.

Local anesthesia is slowly robbing general anesthesia of much of its dangers, and if children, in whom it has hitherto seemed contraindicated, come into the field of applicability of local anesthesia, an important surgical advance has been attained.—E. M.

Surgical Sociology

Ira S. Wile, M.D., Department Editor.

FEDERAL AID FOR HANDICAPPED SOLDIERS AND SAILORS.

Despite the efforts of the Government to be of service in re-educating disabled soldiers and sailors, there appear to be sundry difficulties in awakening them to the opportunities which the Government affords. The number of disabled and handicapped men is not large, but the responsibility of the Government cannot be satisfied until every last one has been placed under conditions leading to their re-education, or their re-institution into industry. It is necessary that re-establishment of those injured by war should occur as rapidly as possible, and that health, strength and self-supporting ability be re-constituted.

Until his discharge from hospital care the medical and surgical treatment necessary is under the jurisdiction of military or naval authorities. The vocational training afterwards necessary to re-secure potential ability for self-support is under the jurisdiction of the Federal Board for Vocational Education. If an artificial limb or other orthopedic or mechanical appliance becomes necessary, the Bureau of War Risk Insurance will supply it free upon his discharge and will renew it when such need arises. If, subsequent to discharge from the Army or Navy medical treatment be again required because of his disability, the same Bureau of War Risk Insurance will supply it without cost. Furthermore, any man whose disability entitles him to compensation under the War Risk Insurance Act may be provided by the Federal Board with a course of vocational training and preparation for a new occupation.

While the Government strongly recommends the vocational re-training and is willing to defray the expenses connected therewith, the decision to accept it is optional with each man. Herein lies the weakness, in that it is necessary to convince and persuade individuals as to the importance of taking advantage of the proferred offer of health.

The liberality of the Government is evidenced in that if the disabled elects to follow the course of vocational training provided by the Federal Board, not alone is the course furnished without cost, but the individual will be paid during the period of training a monthly compensation equal to the sum to which he is entitled under the War Risk Insurance Act, or a sum equal to the pay of his last month of actual service, whichever is the greater. In no instance, however, will a single man or one requiring to live apart from his dependents receive less than $65 a month, exclusive of the sum paid dependents, nor will a man living with his dependents receive less than $75 a month, inclusive of the sum paid to dependents. The family or dependents of each disabled man will receive from the Government during his period of training, the same monthly allotment and allowance as that paid prior to his discharge from the Army or Navy. It is patent that in almost every instance the handicapped individuals can be relieved of the serious difficulty occasioned by the disabilities, or can acquire new powers to replace any that may have been lost.

Men failing to take advantage of the opportunities to increase their skill and to prepare themselves for more highly remunerative positions will be obliged to compete with able-bodied men and thus suffer the financial handicap incident to a

lower grade of industrial ability. The fact that the Federal Board, through its employment service, assists the re-habilitated men to secure positions gives an added benefit, the full worth of which cannot be estimated, in these days of difficulty in securing proper adjustment in industrial life.

The public also requires to be educated as to the necessity of accepting disabled soldiers and sailors in filling vacant positions, providng, of course, that they posess the necessary ability to fill them. Their disabilities as such should not be considered as bases for discriminaton, but full stress should be placed upon their industrial potencies. The medical profession, thoroughly conversant with the physical phases of handicap, should bear in mind the necessity of encouraging disabled soldiers and sailors to accept the liberal offers of the Government and to pursue the courses made available for more or less complete restoration to functional activity.

Communications in regard to this entire matter should be addressed to the Federal Board for Vocational Education, Washington, D. C., or to a district office of the Federal Board in the district in which the individuals may be located. The country has been divided into fourteen districts, with headquarters in Boston, New York, Philadelphia, Washington, Atlanta, New Orleans, Cincinnati, Chicago, St. Louis, Minneapolis, Denver, San Francisco, Seattle, and Dallas. Opportunities of facilitating the work of the Federal Board for Vocational Education is sufficient reason for devoting space to circulating the above information, and it is to be hoped that the cordial cooperation of the profession will be extended in this excellent work of rehabilitating disabled soldiers and sailors.

Book Reviews

Surgical Treatment. A Practical Treatise on the Therapy of Surgical Diseases for the Use of Practitioners and Students of Surgery. James Peter Warbasse, M.D., Formerly Attending Surgeon to the Methodist Episcopal Hospital, Brooklyn, N. Y. In three large octavo volumes, and separate Desk Index Volume. Volume I contains 947 pages with 699 illustrations. Volume II contains 829 pages with 761 illustrations. Philadelphia and London: W. B. Saunders Company, 1918.

To attempt to compile a system of surgery is by no means a simple matter. When a single author, however, endeavors to unify his system by excluding therefrom the assistance of various contributors, he undertakes a monumental task. Considered from this standpoint, Dr. Warbasse has been eminently successful. He has presented a splendid, well-balanced, excellently organized work, thoroughly abreast of the demands of modern surgery. Most striking is the fact that behind the excellent subject matter is the underlying thought that surgery is merely a means to an end, that surgical technic is merely a tool to be utilized in the interest of human beings. Furthermore, the spirit of the author is reflected on every page as that of a teacher who desires to inspire his students. He is not a slave to tradition, and, therefore, studiously suggests originality in procedure instead of dependence upon cut-and-dried technical formulae.

The literature of surgery has been thoroughly studied and has been cleverly collated so as to promote smoothness in presentation. There has been frank acknowledgment of credit where necessary, although the names of discoverers of methods and instruments have been intentionally rejected because of the objection of the author to "proper-name nomenclature." As a believer in co-operation, surgery is presented as a product of harmonious effort, born of a desire for mutual aid in the advancement of human welfare. At the same time, sufficient credit has been given by name or quotation to the work of surgeons throughout the world in so far as was necessary in carrying out the policy of integrating surgical accomplishments without an assumption of egotistic superiority.

Volume One deals with the general of surgery and includes discussions of surgical materials, anesthetics, wounds and operations, and then takes up in an orderly way the general subjects of inflammations, surgical fevers and infections, blood and blood vessels, diseases of the bones, dislocations, diseases of the joints, operations on bines, joints, tendons, fasciæ, bursæ, skin and its appendages, and the nerves.

Volume Two is devoted to surgical treatment of the head, spine, neck, thorax, breast and abdomen.

Laying aside the question of the method of handling the subject matter, the most striking feature of the two volumes thus far issued consists of originality. The illustrative material is new, plentiful, excellently and artistically developed and arranged. No system of surgery today has received more careful and thorough study of the art of presentation. Old illustrations of former generations are lacking. The artistic skill of the twentieth century is everywhere evident, from the simplest line drawing to the most detailed illustration which has demanded the skill of capable artists. The publishers have co-operated by presenting a typography thoroughly harmonious with the spirit of the author, so that from the preface through the index they have provided a work considerably above the average for medical publications.

As a whole, the dominant idea of practical and original presentation is constantly in evidence. Warbasse has been successful in offering a personal system of surgery, built upon the accomplishments of the long line of surgeons whose efforts have built up modern surgery. He has accepted what he regards as the well-founded therapy of the past and combined with it the essential principles of the newer modes of treatment, still under trial, without seeking to afford surgical novelties, and without discriminating against technic, either because of youth or age. His efforts merit success commensurate with his labors, his enthusiasm, and his skill as a writer and a surgeon. He has successfully developed a "system" of surgical treatment which must commend itself to practitioners and students of surgery as an up-to-date, thorough, practical, and inspiring treatise on surgical treatment.

Surgery in War. By Alfred J. Hull, F.R.C.S., Lieut.-Col. British Army Medical Corps; Surgeon, British Expeditionary Force, France; Late Lecturer on Surgical Pathology, Royal Army Medical College, Milbank; and Surgeon, Queen Alexandra Military Hospital. With a preface by Lieut.-Gen. T. H. J. C. Goodwin, C.B., C.M.G., D.S.O., Director General, Army Medical Service. *Second Edition*, 624 pages with 210 illustrations. Philadelphia. P. Blakiston's Son & Co., 1919.

This is a fine contribution to the subject of military surgery and, practically, brings the subject up to date. The subjects discussed include wounds in general, and wounds of the face and jaws, the chest, the abdomen, the peripheral nerves, and the bones, in particular. Anaerobic infections, including tetanus, are described separately; the bacteriological descriptions of the various anaerobes

found is particularly good, and an excellent comparative chart of the biological tests for distinguishing the groupings is appended. Perhaps a little more detail in the descriptions of the various apparatuses for the treatment of fractures, joint injuries, etc., would be desirable. Throughout the book the geatest attention is given to therapy.

The additional contributors to this volume include Pilcher, Miller, Browning, Petrie, Richards, Jocelyn Swan and Tracy.

Books Received

The Disabled Soldier. Douglas C. McMurtrie, Director, Red Cross Institute for Crippled and Disabled Men; President, Federation of Associations for Cripples; Editor, American Journal of Care for Cripples. With an Introduction by Jeremiah Milbank, Vice-Chairman, Committee of Direction, Red Cross Institute for Crippled and Disabled Men. New York: The Macmillan Company, 1919. Pp. 232.

Roentgenotherapy. Albert Franklin Tyler, B.Sc., M.D., Professor of Clinical Roentgenofogy, John A. Creighton Medical College; Attending Roentgenologist, St. Joseph's Hospital; Bishop, Clarkson Memorial Hospital, Ford Hospital, Immanuel Hospital, Douglas County Hospital, and Lord Lister Hospital, Omaha, Nebraska; Member American Roentgen Ray Society; Fellow American Medical Association, Etc. With illustraions. St. Louis: C. V. Mosby Company, 1918. Pp. 162.

Squibb's Atlas of the Official Drugs. William Mansfield, A.M., Phar. D., Dean and Professor of Pharmacy and Botany, Union University, Department of Pharmacy, Albany, N. Y.; Late Professor of Biology and Pharmacognosy, College of Pharmacy of the City of New York, Columbia University, and Botanist and Pharmacognosist to E. R. Squibb and Sons; etc. Published by E. R. Squibb & Sons, New York.

Proceedings of the Royal Society of Medicine. Edited by J. Y. W. MacAlister, Under the Direction of The Editorial Committee. *Volume the Eleventh.* Session 1917-18. *Section of Anesthetics.* London: Longmans, Green & Co., Paternoster Row, 1918.

Essentials of Surgery. A Textbook of Surgery for Student and Graduate Nurses and for those Interested in the Care of the Sick. Archibald Leete McDonald, M. D. The Johns Hopkins University. Formerly in charge of Department of Anatomy, University of North Dakota; Lecturer on Surgery, Nurses Training School, St. Lukes Hospital, Duluth, Minnesota. 46 illustrations. Philadelphia and London, J. B. Lippincott Company.

United States Naval Medical Bulletin. Published for the Information of the Medical Department of the Service. Issued by The Bureau of Medicine and Surgery, Navy Department, Division of Publications. Report on Medical and Surgical Developments of the War by William Seaman Bainbridge, Lieutenant Commander, Medical Corps, United States Naval Reserve Force. Washington Government Printing Office, January, 1919.

The Operative Treatment of Chronic Intestinal Stasis. Sir W. Arbuthnot Lane, Bart., C. B. Consulting Surgeon to Guy's Hospital, and to the Hospital for Sick Children, Great Ormond Street. *Fourth Edition,* Revised and Enlarged. London, Henry Frowde, Hodder & Stoughton. Oxford University Press. Warwick Square, E. C. 1918.

Complete Index to Volumes I, II and III of Warbasse's Surgical Treatment. Philadelphia and London: W. B. Saunders, 1919.

Progress in Surgery

A Résumé of Recent Literature.

A New Incision for Appendectomy. Leigh F. Watson, *Annals of Surgery,* October, 1918.

The number of incisions that have been brought forward for appendectomy from time to time, show that no one incision is adapted to all cases. Many writers have noted that in the cadaver the base of the appendix is found at McBurney's point, while in the living subject it is below this point, usually on a level with the center of Poupart's ligament. A number of operators have called attention to the ease with which the appendix can be removed when operating for right inguinal hernia. Since 1910, I have used a new incision, with its center over the base of the appendix, and believe that in many cases it is an improvement over those in general use.

Incision: A point one and one-half inches from the right anterior superior spine, on a level with a line connecting the two superior spines, is selected for the beginning of a vertical incision which extends directly downward for two to three inches to a point just above, and to the inner side of the internal abdominal ring.

Advantages: Traction to expose the appendix is avoided, because of this incision, in the external oblique and its aponeurosis, the most resistant structures, is directly over the base of the appendix. It can be enlarged without weakening the abdominal wall. The ilio-hypogastric and ilio-inguinal nerves are not injured because the incision lies between them. Because this incision is made over the cecum, the small intestines do not crowd into the wound as they do when the McBurney and lateral rectus incisions are used.

Hyperplasia of the Appendix. D. Symmers and M. Greenberg, *J.A.M.A.,* Feb. 15, 1919.

Attention is called to the lymphoid hyperplasia of the appendix in their records in Bellevue Hospital in the examination of several thousand appendixes. This condition was found to predominate in about 10 per cent. of the whole, by microscopic study. Twenty of the cases have been specially studied, ten boys and ten girls. The patients had complained of spasmodic recurring pains or pain and moderate tenderness in the region of McBurney's point, lasting for several hours or days. Muscular rigidity, if present, was not easily marked. Nausea was not uncommon, but vomiting was rare. The temperature was always normal and the pulse rarely above 80 or 90. Headache and constipation were fairly common. Naked eye pathologic changes were not seen, but the microscope revealed the conditions. The occurrence in the germinal follicles of degenerative lesions of the sort described is best explained as a histologic indication of status lymphaticus. These degenerative foci have previously been seen by other observers, Lartigau and Blumer. The authors describe the signs of the lymphatic constitution and point out its dangers, using as an incident the death from antitoxis of Langerhan's child about thirty years ago, though some of the patients may be capable of withstanding both injuries and infections to which others succumb. The bodily characteristics of the lymphatic constitution have been known for some time, but have been largely ignored, as such inspection does not hold as high a position among diagnostic methods as it formerly did. In the clinical conglomerate of scrofula, Gross long ago pointed out the angelic child which he attributed to the lymphatic constitution, and after puberty the condition is still more easily recognized. Summing up their paper, the authors conclude that: "There is a clinically recognizable syndrome referable to lymphoid hyperplasia of the appendix, attended by degenerative or necrotic lesions in the germinal areas, with or without sclerosis of the interstitial tissues of the submucosa. The syndrome is marked by repeated attacks of appendical colic, occurring at intervals of days, weeks or months, but is not accompanied by noteworthy changes in pulse, temperature or blood count, and is encountered most frequently in children or young adults. It is probably peculiar to subjects of status lymphaticus."

Migratory Appendix. J. E. ALLABEN, *J.A.M.A.*, March 8, 1919.

After remarking that certain tumors in the abdomen, having been removed from one place to another, have their nutrition maintained by new blood vessels of the adhesion, he reports a case in which the appendix had been entirely displaced as a result of gonorrheal inflammations and had to be dissected out from its adhesions. It was entirely separated from the cecum and had been kept alive by new blood vessels that it had formed. It is difficult to say, Allaben remarks, whether the appendix or the tube was the primary offending organ. The latter was leaking pus continually, causing the intestinal adhesions. The patient made a good recovery after the operation for the removal of the appendix, excepting a slight skin stich adhesion. Allaben's opinion is that these adhesions would have gradually been absorbed, but it is easy to see that a tube leaking puts into the peritoneum might cause trouble. The condition of the appendix, here found, may account for some cases in which it is reported missing.

Secondary Jejunal Ulceration. CARNETT WRIGHT, *British Journal of Surgery*, January, 1919.

Where the preliminary operation has been an anterior gastro-enterostomy, with or without entero-anastomosis, the gastro-enterostomy should be undone—the opening in the stomach closed in the usual way and the small intestine dealt with as indicated. When pyloric stenosis is present, a large no-loop posterior gastro-enterostomy should be made, employing catgut sutures. Whenever possible the conditions should be restored and the stoma done away with. When a stenosis is present at the pylorus, the last condition can be accomplished by doing the Finney operation. In all cases postoperative care as regards diet, etc., should be exhibited for a long time.

A Procedure for Avoiding Colostomy and Colectomy. A. RENDLE SHORT, *British Journal of Surgery*, January, 1919.

This is directed towards improving the technic in intestinal obstruction. The procedure consists in dividing the ileum several inches from the valve, doing an end-to-siide anastomosis with the sigmoid by Murphy button, and bringing the proximal end of the ileum up to the skin. The procedure has also been applied in visceroptotic conditions.

The Treatment of Hypertrophic Stenosis in Infancy. OLIN W. ROWE and WM. A. COVENTRY: *Journal-Lancet*, March 15, 1919.

Medical treatment should be offered in all cases of congenital hypertrophic stenosis until it has been definitely determined that surgery is necessary. The symptoms which demand surgical intervention are rapid loss in weight, persistent forcible vomiting, and active gastric peristalsis. The roentgen ray and duodenal catheter reveal nothing not easily discovered by simple physical examination, and are not without danger.

In the Cure of Prolapse of the Uterus. A. M. JUDD, *American Journal of Obstetrics, etc.*, February, 1919.

Judd believes that after an employment during the past five years of the Sems-Emmett-Baldwin combined procedure with uniformly good results, he can practically guarantee a cure to any patient suffering from uterine prolapse. Also, that any operation requiring the opening of the abdomen from above is unnecessary surgery.

His technic is as follows: Make certain that uterus is replaceable and retainable—there should be no complicating adhesions, old exudites or other lesions which tend to defeat the mechanics of the operation. Patient is placed in the Sinis posture on a table which has its head lowered—bind legs and feet together with a wide bandage to retain this position. After the introduction of a self-retaining Cleveland speculum, any other necessary procedure is gone through, such as trachelorrhapy, aerretage, etc. The cervix is then drawn forward into the hollow of the sacrum, throwing the fundus into exaggerated anteversion. These denudations are made after pushing up the cystocele for better observation. The first denudation is in the left lateral or lower original suleus, selected by using a sharp hook and picking up a point in the suleus a little posterior to what would be the normal position of the cervix. The denudation should be about one-half by three-fourths of an inch in axes, the larger diameter being in line with the long axis of the vaginal tube. A similar point is then chosen in the right or upper vaginal suleus, and then the third denudation is made on the anterior vaginal wall at its center with the posterior extremity about one-half inch in front of the cervix, of the same length as the other denudations but wide enough to take care of the lateral denudations which are subsequently brought together at this point; this transverse diameter is usually about 1½ times that of the lateral ones. The lateral contiguous margins of the denuded areas are then brought together by a fine running suture, so that finally a half-moon is formed as a denudation. Two or three silver-wire sutures are then inserted under the denuded areas, bringing them all together in the center, and after pressure is made on the central denudation, they are then twisted together so that an artificial pessary or box is formed in front of the cervix.

Two crescentu folds now extendinig from the base of the urethra to the more external of the silver-wire sutures on the anterior vaginal wall are then denuded and their proximal margins united with plain fine gut and the spread out, denuded areas united by fine silver wire, the sutures then being passed as previously except that they are so arranged as to draw the vaginal wall with the cystocele upward toward the cervix. Three to six sutures are required for the cystocele proper; they are twisted and cut shorter than the others. Several illustrations are shown which are from Balwin's original article.

Several additional suggestions are made regarding possible complications, and mistakes. Seventy cases, with absolute success, have been operated upon so far by this method by the author.

A Series of Cases of Cesarean Section. A. C. BECK, *American Journal of Obstetrics, etc.*, February, 1919.

Although much has been written concerning the too frequent use of Cesarean section as a means of overcoming obstetric difficulties, it is at times the best means of obtaining a good result in serious obstetric difficulties other than marked disproportion, especially when the dangers of the cruder methods—version, crancolamy and decapitation, forceps on the unengaged head, etc., are considered; even though mortality may not occur, infection and trauma are so great as to make it absolutely essential for difficult and dangerous gynecological operations to be performed to relieve them. Beck uses a modified Krönig operation which he describes minutely, having several illustrations also. The principle of his modified technic is to completely seal off the peritoneal cavity from the closed uterine incision so as to place a definite barrier in the path of those infections which reach the peritoneum through infection of the wound in the uterus. This is accomplished by the lapping of the peritoneal flaps. In his personal series of 37 cases there was only one death, probably due to eclampsia. When the operation is done before term there is great danger of losing the premature infant—it should not be performed in the interest of the child in such cases.

The Visitations of Influenza and Its Influence Upon Gynecologic and Obstetric Conditions. L. K. P. FARRAR. *American Journal of Obstetrics, etc.*, February, 1919.

After a discussion of the history of influenza and its effects, Farrar makes an analysis of the results of influenza upon gynecologic and obstetric conditions and concludes that mild attacks have no influence upon them. Severe attacks, however, produce menorrhogia and exacerbations of chronic gynecologic conditions. They often cause abortions, premature delivery, or still birth. Labor is prolonged and tedious, the lahea is bloody and involution is slow. Pregnancy has an unfavorable influence upon the course of bronchitis or pneumonia in influenza. Induction of labor has no beneficial effect upon the course

of influenza. The chances of general infection are greater if influenza occurs during the puerperium and puerperal sepsis must be differentiated.

The Treatment of Sepsis. R. J. BEHAN, *American Journal of Obstetrics, etc.*, February, 1919.

Behan discusses the various methods of therapy and their utilization and makes the following conclusions:

I. Sodium bicarbonate or bicarbonate has a definite place in the treatment of infections, seeming to be almost specific in the early stages of sepsis and pneumonia, but is apparently contraindicated in the later stages. When used in the early stages, intravenous injection is best. If glucose solution is used in the later stages of pneumonia, it should be used alone; if it is to be used in the early stages it may, because of the increased viscidity of the blood, hinder the exudation.

II. Salvarsan is also of value, especially in septicemia.

III. Vaccines are of use in certain cases and in all obstinate cases should be exhibited autogenous and massed vaccines may aid where stock vaccines fail. Overdosage of the vaccines seems to have a deleterious influence.

IV. Anti-streptococic serum is of great value in streptococcic infection, producing wonderful and immediate results. It should not, however, be given on a falling temperature and if the temperature remains stationary it should be given only in greatly reduced doses. A chill following its administration is not a bad omen. Small preliminary injections should be given as a dose for serum sickness—large initial doses should be given, however, in all cases.

V. Transfusions are of distinct value in sepsis, especially in those cases of falling blood pressure. Severe reactions follow at times and should be guarded against by small and repeated injections. Antitoxic blood may be produced in the donor by previous vaccine treatment.

The treatment of sepsis varies according to the stage of the disease. He divides it into three stages: early, developed, and recovery.

In the early stage there is a high pulse for which cardiac stimulants are indicated—digatol, strychnine, and strophantus found best. For the low temperature, especially those which are subnormal, the patient should be well wrapped and external heat applied. Low blood pressure should be counteracted by vasomotor stimulants, as pituitrin, strychnine, ergotin, eserine; by transfusion of blood or salt solution, or sodium bicarbonate, or sodium bicarbonate and glucose. As soon as the primary shock is overcome, prophylactic or resistance increasing measures should be instituted—vaccines in the early stages before a polymorpronualear increase has occurred, and later the use of an antitoxin. If it is a streptocaccic infection, antiserum should be given immediately because of the immediate danger of death.

The later stage—the developed—where the sepsis is clearly seen, may be divided into a stage of toxemia and a stage of septicemis. In the toxemia, the first thing to do is to remove the cause of the septic infection. At the same time efforts should be made to counteract the toxins by increasing the resistance of the organism by forced feeding of highly nutritious and palatable food, plenty of fresh air and sunlight (especially sun baths). In addition, the toxemia is neutralized by proper antitoxins, the use of alkalies in the form of sodium bicorbonate alone or in combination with glucose by mouth, or what is much better, by enteroclysis, hypodermoclysis, or intravenously, the giving of large quantities of fluid by mouth, by rectum, hypodermoclysis or intravenously and the transfusion of blood in severe cases. Cardiac and vasemotor stimulants, such as digatol, strophanthus, strychnine, camphor, pitutrin ergotin, eserine, etc., are given in addition. Recovery may occur very quickly in this stage by the removal of the infecting focus and by the counterization of the taxemia by the above methods. A marked lemorytoris is present as a rule. The blood pressure is not markedly decreased. In the septicencia all the measures used against the toxemia should be used. In addition, antiseptics, such as bichloride of mercury and salvarsan, should be injected directly into the blood stream. This stage is most serious and the patient is in the greatest danger, especially so when a polymorphonuclear decrease is followed by a leukopenia.

In the stage of recovery, the treatment should be of a supporting character, i. e., rest, both mental and physical, good food, fresh air and sunshine.

Influenza in Its Relation to Pregnancy and Labor. P. B. BLAND, *American Journal of Obstetrics, Etc.*, February, 1919.

Medical science has stood impotent and practically helpless in many instances, but more especially in the cases of women in the various stages of pregnancy. Certain factors stand out prominently: the enormous number of persons afflicted, the pulmonary complications, the high degree of mortality, the unusual disturbance in the functions of the female generative organs, the susceptibility of pregnant women, the high percentage of abortion and premature labor in these women, and the extremely high mortality occurring in these subjects. Pregnancy increases the susceptibility of women to nearly all the acute infections with the probable exception of cholera and scarlet fever, and, in addition, mortality is greatly increased. The cause of the disease does not differ from that seen in the non-pregnant. The disease is distinctly a contact infection in the mother, and so whatever is to be accomplished in view of our present knowledge, must be done by early and complete isolation. The prognosis depends upon the type of infection, its severity and extent of complications —practically all mild cases recover with the continuation of the pregnancy.

Caliper Treatment. D. W. CRILE, *Journal American Medical Association*, March 15, 1919.

The author discusses certain points of the treatment of fractures of the femur by the caliper method, introduced into general surgery by Lieut.-Col. Besley, U. S. A., and recommends it very highly. The value of the caliper in these cases lies in the fact that a direct force can be applied to the bone without damaging it and without penetrating its cortex. The penetration of the cortex implies misuse of the instrument or a defect in its construction. The original instrument is better than some of its modifications. Penetration of the cortex depends on several factors, but chiefly on the shape of the caliper points. A long thin taper is the worst. The relative length of the handle arm is also important, and when the handles widely diverge the chance of penetration is greater. The arrangement of the cords at the handle ends has also much to do with the pressure. The position on the femur is another great factor. But most important of all is the joggling or constant vibration, transmitted over the pulleys by the ropes and instigated by the body tone and movements. Gross movement is not referred to, but a constant fine vibratory one, such as that produced by boring, with a blunt instrument. In Crile's experience it has never been necessary to bore small holes into the bone to hold the calipers. The pressure on the points must be steady, and any variation of the pull on the ropes means pain, erosion or penetration of the cortex, or all three together. The most important points to be borne in mind are: (1) a short, broad tapering point, (2) the prevention of very slight joggling, (3) application to the hard portion of the bone, (4) low leverage (short handle ends not diverging too much), and (5) check appliances. There are several kinds of check appliances in use, the purpose of which is to check penetration by putting a stop between the handle ends of the calipers to prevent the points coming too close. This, however, does not prevent the one point from penetrating when the other is pushed away from the bone and slips. Crile finds more satisfactory a screw locking both approximation and spreading. The question of corrosion of points does not apply to short heavy ones, which could not in many months corrode enough to do harm. The disadvantages in the use of the caliper are, Crile thinks, vastly outweighed by the improvement in length, early union, good position and clearing up of sepsis, decreased number of cases of acute medullary osteomyelitis, stiffness and stiff ankles, and pressure paralyses of the external popliteal nerve. The drawbacks that cannot be avoided otherwise have been met by designing a caliper

permitting the pull to be taken from the sides and allowing the knee to be fully extended. It has, however, the objection of being more expensive. Crile describes the metrod of applying the calipers which he has found most satisfactory. The fracture itself is an important factor in deciding the point of application, and much may depend on the direction of the pull. The rule is to pull in the direction of the long axis of the bone, except in duly considered exceptional cases. The amount of pull will vary according to the amount of shortening to be overcome, the strength of the muscles, the age and site of the fracture, the amount of swelling and tenseness of the deep fascia, and the degree of the infection. "It is my custom to apply 15 pounds directly. If this promises, after twenty-four hours, to stretch the fractures sufficiently, it is enough. If it seems not to perform its function, which can be from ¼ to 2 inches per day, it is increased to 20 pounds, which is sufficient to stretch almost any fractures full length, provided the apparatus is correct. One need not hesitate to use 25 pounds, or even 30 pounds for a few days, and often forcible reduction under an anesthetic may be resorted to. If the extra weight causes periosteal pain, it can be reduced. One finds that 10 pounds is the least that avails fully, although others can get results with only 5 pounds, I am told. However, one aims to get a little overlength inside a week and thereafter to hold this gain by tie-on fixed extension, which in reality takes very little pull once overlength is accomplished." The caliper will probably cause some discomfort the first forty-eight hours and perhaps at a later period. Relief can often be given by a little local anesthetic applied near the point of the caliper, such as a pinch of powdered procain on the dressing. Or a temporary reduction of the weight, if it can be done without slipping, will help. The method is applicable to bones other than the femur, such as the tibia, fibula and rumerus, and others have had success in these cases. The illustrations are useful in making clear the description of the methods.

Severe Acute Sprains of the Knee Joint. MAYNARD C. HARDING, *Journal of Orthopedic Surgery*, March, 1919.

In the treatment of these conditions the following points are important: (1) careful diagnosis of type of sprain: (2) aspiration of any distended joint promptly, since all effusions absorb slowly; (3) prevention of joint capsular distention, since that is one of the causes of later weak knees; (4) early baking and massage; (5) strict supervision and manner of returning to use.

A Study of Buried Bone. JOHN F. COWAN and LEONARD W. ELY, *American Journal of Orthopedic Surgery*, February, 1919.

A fragment of bone embedded fresh in the muscle of the animal from which it had been removed does not disappear for a long time. Absorption is the rule in the interior; at the circumference it may be replaced by fibrous tissue. The actual method of absorption is oftentimes difficult to determine; there are no giant cells, no leucocytic infileration, no increased vascularity of the marrow. The death of the bone tissue is the rule. A patella with all its coverings does not resist absorption better than a bone fragment with exposed marrow. The narrow has a tendency to become fatty and fibrous although patches of lymphoid tissue may persist.

Cartilage becomes eroded and is replaced by fibrous tissue; or it disappears in areas.

Roughly the changes in bone and cartilage resemble those of an atrophic or proliferative arthritis.

The Treatment of Chronic Osteomyelitis Due to Gunshot Injuries. C. F. EIKENBARY, *American Journal of Orthopedic Surgery*, February, 1919.

The aim of the operation is to get rid of all necrotic bone; to avoid leaving any cavity at all; to avoid spiculus, rough areas, etc. The writer's cases all healed in four weeks. In a general way this corresponds with the technic used for osteomyelitis of civil life.

La Contusion de l'Os Spongieux Par Projectiles de Querre. (Contusions of Cancellous Bone by War Missiles.) DE GAULEJAC and NATHAN: *Revue de Chirurgie*, May-June 1918.

The study resulted in the following conclusions:

Wounds of cancellous bone are not productive of any local symptoms, which latter, however, appear with the local complications and have a rather slow onset. In general the local complications are not proportionate to the extent of the bony changes. A hyperacute or subacute development indicate a massive inflammatory destruction of bone; fever is the most prominent symptom, and its appearance should create suspicion of an inflammatory process. A septicemia is present and may persist after surgical healing; the only indication of the latter may be an elevation of the pulse. A negative blood culture does not imply a local healing but a positive one indicates a local focus.

The Operative Treatment of Ruptured Internal Lateral Ligament of the Knee. T. P. MCMURRAY, *British Journal of Surgery*, January, 1919.

The usual operation of pleating of the ligament is frequently followed by recurrence of the disability. The operation recommended is as follows: When present a ruptured semi-lunar cartilage is removed. The essential part of the operation consists in advancing the tendon of the sartorius muscle forwards to lie over the internal lateral ligament, where it is made to lie in a groove in the lower end of the femur and in a slit in the internal lateral ligament. This does not interfere with the normal movements.

Displacement of the Mandibular Meniscus. J. HOGARTH PRINGLE, *British Journal of Surgery*, January, 1919.

Pringle discusses the mechanism by which this rather uncommon accident occurs. Usually it results from overaction in closing the mouth after some excessive action as yawning. The method of reduction is described. The accident, once it has happened, can be repeated. The pain and discomfort is due to pressure on the cartilage.

The Transplantation of Bone in the Repair of Cranial Defects. CHARLES H. GILMOUR, *Surgery, Gynecology and Obstetrics*, September, 1918.

The following benefits follow the operation: Depression leaves, and patient becomes optimistic and bright. Headaches improved in all cases; entirely absent in large percentage. Memory improves; dizziness disappears. Eyesight improves, the blurring of vision disappears, and the color fields increase. The man ceases to be a permanent ward of the state and becomes a useful citizen, capable of carrying on any ordinary occupation.

Superficial Burns. H. G. WEISKOTTEN, *Journal American Medical Association*, January 25, 1919.

With the design of pointing out the bearings of necropsy findings after death from superficial burns, Weiskotten reports his personal observations in ten fatal cases, as bearing on the question of a fatal toxemia. He reviews Bardeen's previous observations which indicate a circulating poison in the blood. Weiskotten has studied ten cases, the patients' ages varying from 19 months to 60 years, and the burn causing death from within a few hours to twenty days. In all cases large areas of the body surface were involved to a varying extent, but in none was there any evidence of charring. The most prominent and characteristic lesions were seen in the suprarenals which were markedly swollen and deep red. Microscopic examinations showed marked congestion of the blood vessels and possible evidence of hemolysis and thrombi. In cases of duration of less than twenty-four hours the changes were less prominent, but the lesions in general were comparable to the central necrosis occurring in the liver of the guinea-pig in chloroform poisoning, except that they were more diffuse. As far as he knows no other condition produces similar changes in the suprarenals. In the spleen the gross appearances were not marked, unless it was that the splenic

noduls appeared rather prominent in some cases. Microscopically in all the cases of less than three days' duration, there were characteristic lesions in the lymph nodules, edema and apparent necrosis of the germinal centers. In later cases there were corresponding lesions in distribution and the appearances suggested that the areas represented earlier lesions in the process of hyaline degeneration and resolution. In the blood sinuses, there was what might be in some cases indications of thrombi and hemolysis, but these were not definite. In the lymph nodes, generally, the changes correspond to those described in the spleen. Their involvement, regardless of location, and the involvement of the germinal centers of the nodules suggest a poison in the circulating blood, brought by way of the lymph stream. In two cases there were areas of hemorrhage under the endocardium of the left heart ventricle, and microscopically, evidence of injury to the muscle fibers, comparable to the lesions of the heart in diphtheria and other severe toxemias. The kidneys showed no gross change microscopically, but microscopically in four cases there were fibrin thrombi in the apillaries of the glomerular tufts, and in four cases of more than two days' duration, there were minute hemorrhages in the mucosa of the stomach and intestines, and in the case of twenty days' duration punctate ulcers were present. No constant gross changes were observed in the liver, but, microscopically, in two cases foci of necrosis of liver cells were evident. In the two-day cases there were punctate hemorrhages in the epicardium. Moderate congestion of the lungs occurred in the two cases, and edema in two others. In three cases there was definite congestion of the abdominal vessels. A definite pathologic condition was evident from the necropsy findings generally, indicating a poison by toxins circulating in the blood as an important factor of the fatal result. Weiskotten does not discuss the question of so-called shock in these cases

The Relationship Between Tonsillar Infection and Recurrent Vomiting. ROOD TAYLOR, *Minnesota Medicine*, February, 1919.

In forty-seven cases of recurrent vomiting in children, there were forty cases in which there was evidence of tonsillar or adenoid disease. In six of the twenty-four patients whose tonsils and adenoids were removed, no further information could be secured. One of the remaining eighteen patients is unimproved. Five are very much improved, and twelve have had no attacks since operation, this period varying from seven months to six years.

Contribution to the Study of Rhinoplasty. Professor E. J. MOURE, Bordeaux. *Annals of Otology, Rhinology and Laryngology*, December 1918.

After giving due credit to the rhinoplastic work of Nelaton and Ombredanne the author calls attention to the fact that war mutilations are much more extensive and bizarre than those caused by disease or as the result of operative procedure. Bony framework as well as soft parts are destroyed and in many cases there are thick cicatricial keloid tissues to be removed before success can be obtained. Bullet wounds are usually simple and not very destructive but those caused by shell or grenade splinders cause extensive and deep mutilations. These wounds heal with thick and adherent scars which it is usually best to remove and to borrow healthy tissue from the neighboring parts. The skin of the forehead lends itself well to this.

Several operations must be done. The first part of the reconstructive treatment contents itself with the closure of the artificial openings and the restoration of the soft parts and the bony framework. The greatest care should be observed by those who give first aid to these patients to preserve the natural passages and orifices. The esthetic results then are almost secondary in importance.

A case is reported in detail with illustrations that show the procedure better than any amount of description can. There was a loss of nasal substance beginning at the middle of the nose and within 1 cm. of the intersuperciliary line extending outward and downward toward the left ala. The bones of the nose on the left side of the nasal floor were destroyed. The septum was bent and perforated and the left maxillary sinus opened. A series of operations, five in number extending over a period of fifteen months gave an excellent functional and esthetic result.

The author observes that each case must be taken individually, subject to a general method but with many special and specific applications.

A New Camp Disease of the Larynx: "Pneumococcus Ulcerative Laryngitis." FREDERIC D. OWSLEY, Capt. M. R. C., Base Hospital, Camp Travis, San Antonio, Texas. *Annals of Otology, Rhinology and Laryngology*, Sept. 1918.

A hitherto undescribed condition of the larynx resembling syphilitic ulcerative laryngitis in which the most constantly present organism is the pneumococcus. The author names it, therefore, pneumococcus ulcerative laryngitis. One hundred and twenty cases were observed at the Base Hospital at Camp Travis. The majority of the patients give a history of exposure to the elements tho a few had had measles, mumps or pueumonia previous to the onset of the laryngological condition. During the time that these cases were observed there were a large number of cases of pnumonia at the camp and in the hospital. Many of these patients were suffering with complications involving the ears, nose or throat.

The most constant symptom is aphonia. It was present in 85% of the patients. Hoarseness may be the only symptom. In many cases the aphonia is of long standing, some have remained aphonic during six months of observation. Laryngeal examination shows symmetrically opposed ulcerations of the mucosa of the anterior third of the cords. The ulcers are elliptical in shape, situated on the superior surface of the cord and involve the free border. In certain cases the ulceration is more extensive and may run the entire length of the cord. In these cases, due probably to freer drainage of the ulcerated areas, hoarseness rather than aphonia is the predominating symptom. In many cases aphonia persists after the healing of the ulcers. This is due to a persistent paresis of the transverse arytenoid muscle.

Treatment consists in the application of silver nitrate to the ulcers beginning with 2% and increasing to 5%. Farradization is employed to combat the aphonia.

The Clinical Manifestations of Empyema. CAPTAIN WARREN T. VAUGHAN, *M.R.C., U. S. Army, The Journal of Laboratory and Clinical Medicine*, December, 1918.

The signs and indications for empyema may vary with each case. Vaughan groups the empyema cases he has met in nine different classes, viz.: 1. Primary empyema; the history, signs and course are clear. 2. Precocious empyema; this disease develops after frank lobar pneumonia and may be present as early as the first day after the development of the pneumonia. 3. Cryptic empyema; empyema may be present (even with the type of bronchopneumonia prevalent during the present influenza epidemic) and its signs masked. However, diminished breath-sounds with flatness should call for diagnostic aspiration. 4. Massive empyema; this condition occurs infrequently. 5. Suppurative polyserositis. 6. Interlobar empyema. 7. Juxtamediastinal pus. 8. Polylocular empyema. 9. Latent empyema. All present rather a distinct picture according to Vaughan. For the last five type the x-ray is particularly valuable in making a correct diagnosiis.

Les Fausses Actinomycoses (False Actinomycosis). H. GOUGEROT, *Revue de Chirurgie*, May-June, 1918.

Gougerot concludes from his study that the typical appearances of actinomycotic lesions of the face, neck, thorax, fingers, and of the skin and bone can be simulated by certain microbic infections of the skin, by syphilis, by cancer complicated by infection, by tuberculosis and by certain infections the etiology of which is still undetermined. The diagnosis of actinomycosis must be made by demonstrating the parasite in the secretions, or by the serological methods of Widal and Abrami.